
Draft
Initial Study/Proposed Mitigated Negative
Declaration
for the
Chelsea Wetlands Restoration Project

City of Hercules, California

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TABLE OF CONTENTS

1.0 INTRODUCTION AND PURPOSE.....	4
2.0 PROJECT INFORMATION	5
2.1 PROJECT TITLE	5
2.2 LEAD AGENCY NAME AND ADDRESS	5
2.3 CONTACT PERSON AND PHONE NUMBER	5
2.4 PROJECT LOCATION	5
2.5 GENERAL PLAN DESIGNATION AND ZONING DISTRICT	8
2.6 SURROUNDING LAND USES AND SETTING	8
3.0 PROJECT DESCRIPTION.....	10
3.1 PROJECT BACKGROUND	10
3.2 PROPOSED PROJECT.....	10
3.3 CONSTRUCTION	21
3.4 PROJECT-RELATED APPROVALS, AGREEMENTS, AND PERMITS.....	21
4.0 ENVIRONMENTAL SETTING.....	23
4.1 HISTORIC LAND USE	23
4.2 CURRENT LAND USE.....	23
4.3 SURROUNDING LAND USES AND HABITATS.....	23
5.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED.....	25
DETERMINATION.....	25
INITIAL STUDY CHECKLIST	26
5.1 AESTHETICS.....	27
5.2 AGRICULTURAL AND FORESTRY RESOURCES	29
5.3 AIR QUALITY	31
5.4 BIOLOGICAL RESOURCES.....	43
5.5 CULTURAL RESOURCES	70
5.6 GEOLOGY AND SOILS.....	74
5.7 GREENHOUSE GAS EMISSIONS.....	78
5.8 HAZARDS AND HAZARDOUS MATERIALS	81
5.9 HYDROLOGY AND WATER QUALITY	87
5.10 LAND USE AND PLANNING	102
5.11 MINERAL RESOURCES	109
5.12 NOISE.....	110
5.13 POPULATION AND HOUSING.....	122

5.14 PUBLIC SERVICES.....	123
5.15 RECREATION.....	125
5.16 TRANSPORTATION AND TRAFFIC.....	126
5.17 UTILITIES AND SERVICE SYSTEMS.....	129
5.18 MANDATORY AND FINDINGS OF SIGNIFICANCE.....	131
6.0 REPORT PREPARERS AND PERSONS/ORGANIZATIONS CONSULTED.....	134
LEAD AGENCY.....	134
REVIEWING AGENCY.....	134
APPLICANT.....	134
CEQA AND PERMITTING CONSULTANT.....	134
SUBCONSULTANTS.....	134
7.0 REFERENCES.....	136
7.1 CHECKLIST INFORMATION SOURCES.....	136
7.2 REFERENCES.....	137

LIST OF TABLES

Table 1. Summary of Land Ownership.....	8
Table 2. Air Quality Significance Thresholds.....	34
Table 3. Construction Period Emissions.....	36
Table 4. Summary of Biological Communities within the Project Area.....	45
Table 5. Summary of Project Habitat Impacts to Sensitive Natural Communities.....	66
Table 6. Summary of Project Impacts to Wetlands and Waters of the U.S.....	66
Table 7. City of Hercules General Plan Policy Consistency Analysis.....	103
Table 8. City of Pinole General Plan Policy Consistency Analysis.....	106
Table 9. Construction Equipment Noise Levels at 50 feet.....	116
Table 10. Vibration Source Levels for Construction Equipment.....	119

LIST OF FIGURES

Figure 1. Project Location Map.....	6
Figure 2. Project Area and Surrounding Land Uses.....	7
Figure 3. Land Ownership.....	9
Figure 4a. Project Site Plan-Overview.....	12
Figure 4b. Project Site Plan-New Sheet Pile Walls.....	13
Figure 4c. Project Site Plan-Culvert and Trail Turnouts.....	14
Figure 4d. Project Site Plan-Cross Section Details.....	15
Figure 5a. Existing Site Photos.....	16

Figure 5b. Existing Site Photos17

Figure 6a. Surrounding Site Photos18

Figure 6b. Surrounding Site Photos19

Figure 7. Project Construction Site and Nearby Sensitive Receptors40

Figure 8. Potential California Red-Legged Frog Aquatic Habitat51

Figure 9. Jurisdictional Features67

Figure 10. Noise Monitoring LocationsDiscussion of Impacts.....112

Figure 11. Sensitive Noise Receptors120

LIST OF APPENDICES

(Under Separate Cover)

Appendix A Air Quality Data

Appendix B Biological Resources Data

Appendix C Cultural Resources Data

Appendix D Geological Data

Appendix E Hazardous Materials Data

Appendix F Hydrology and Water Quality Data

1.0 INTRODUCTION AND PURPOSE

This Initial Study is being prepared to conform to the requirements of the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Code of Regulations 15000 et. seq.), and the regulations and policies of the City of Hercules (City). This Initial Study evaluates the potential environmental impacts which might reasonably be anticipated to result from implementation of the Chelsea Wetlands Restoration Project (proposed project).

The City of Hercules is the Lead Agency under CEQA and has prepared this Initial Study to address the impacts of implementing the proposed project. The purpose of the project is to restore tidal marsh for improved habitat and flood capacity.

2.0 PROJECT INFORMATION

2.1 Project Title

Chelsea Wetlands Restoration Project

2.2 Lead Agency Name and Address

City of Hercules
Planning Department
111 Civic Drive
Hercules, California 94547

2.3 Contact Person and Phone Number

Holly Smyth, AICP, Planning Director
City of Hercules
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Hercules CA 94547
510-245-6531, 510-799-8249 fax
hsmyth@ci.hercules.ca.us

2.4 Project Location

The project site is in the East Bay region of the San Francisco Bay area, within western Contra Costa County. The northern edge of the project site is at terminus of Santa Fe Avenue in the City of Hercules, while the southern edge is at the lower reach of Pinole Creek within the tidal influence of San Pablo Bay in the City of Pinole (Figure 1).

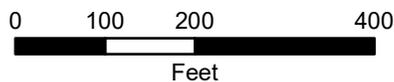
The irregularly-shaped project site is approximately 12.22 acres and immediately adjacent to Pinole Creek (historically part of a large tidal marsh complex that fringed San Pablo Bay). The site was diked off and a large portion of it filled sometime in the late 19th/early 20th century during the development of the Pinole/Hercules area. The project site is currently bordered by the Chelsea-by-the-Bay housing development to the southeast, Santa Fe Avenue to the northeast, the San Francisco Bay Trail and Railroad Avenue (closed for vehicles) to the northwest, and Pinole Creek to the southwest (Figure 2). The western limit of the project site is separated from the north-flowing Pinole Creek by a multi-use trail that runs along the creek bank.



 Project Area

Figure 1. Project Area Location

Chelsea Wetlands Restoration Project
 Contra Costa County, California



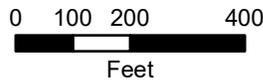
Date: November 2014
 Map By: Michael Rochelle
 Aerial: 2010 Microsoft



 Project Area

Figure 2. Project Area and Surrounding Land Uses

Chelsea Wetlands Restoration Project
 Contra Costa County, California



Date: November 2014
 Map By: Michael Rochelle
 Aerial: 2010 Microsoft

2.5 General Plan Designation and Zoning District

The “Chelsea Wetlands project site” (aka “the project site”) is comprised of four land parcels owned by different entities, as shown in Figure 3, totaling approximately 12.22 acres. The main parcel is owned by the City of Hercules. A portion of the second parcel, which runs along the southern boundary of the project site, is owned by the Chelsea-by-the-Bay Homeowners Association (HOA). Pacific Gas & Electric (PG&E) owns a small parcel that is in process of being transferred to the City of Hercules and a portion of a parcel is owned by Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) within Pinole Creek.

The Assessor's Parcel Numbers for the project site are 404-020-049 and 404-351-131 in the City of Hercules, PG&E property 401-040-003 that will be conveyed to the City of Hercules, and CCCFCWCD's property 401-040-002 in the City of Pinole. The City of Pinole will grant an easement to the CCCFCWCD over the access road portion of the property, where the right bank of the Pinole Creek was realigned. According to Contra Costa County Assessor's Office, there are no physical addresses for any of the parcels.

Table 1 summarizes the land use designations and ownership of the project.

Table 1. Summary of Land Ownership

Ownership	Jurisdiction	APN	General Plan/Zoning
Hercules	City of Hercules	404-020-049	Public Park
Chelsea-by-the-Bay HOA	City of Hercules	404-351-131	Public Open Space
PG&E	City of Pinole	401-040-003	Public Utility Easement/Open Space
Contra Costa County Flood Control and Water Conservation District	City of Pinole	401-040-002	Pinole Creek Flood Control Channel

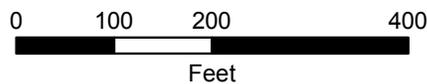
2.6 Surrounding Land Uses and Setting

The project site is situated less than 500 feet southeast of San Pablo Bay. The site is separated from the Bay by a portion of the San Francisco Bay Trail, a limited access frontage road identified as Railroad Avenue, a two-track rail line and siding operated by Union Pacific Railroad, and an intertidal mudflat. Easements between the project site and the railroad include a petroleum pipeline operated by Kinder Morgan Energy Partners, L.P, two fiber-optic cables, and a PG&E natural gas line. Inbound and outbound sanitary sewer and a sewer force main are located under the existing adjacent Trail within City owned property while an East Bay Municipal Utility District main waterline is located within the existing Railroad Avenue right-of-way. The Pinole Creek flood control channel runs northwest into San Pablo Bay and is located along the south side of the project site. The property to the south, beyond a multi-use trail and Pinole Creek, is a recreational vehicle storage yard, with residential development beyond. The Pinole-Hercules Wastewater Treatment Plant operated by the City of Pinole is located along the edge of San Pablo Bay to the southwest across the creek, frontage road, and railroad tracks. Lands to the south and east are single-family residential development.



Figure 3. Land Ownership

Chelsea Wetlands Restoration Project



Date: January 2014
 Map By: Michael Rochelle
 Aerial: 2010 Microsoft

3.0 PROJECT DESCRIPTION

3.1 Project Background

The City of Hercules is proposing to restore tidal marsh habitat on the Chelsea Wetlands Project Site (project site). The project site consists of several undeveloped land areas totaling 12.22 acres adjacent to the Pinole Creek flood control channel (herein known as Pinole Creek) in the City of Hercules, Contra Costa County, California (Figure 1). Historically, the project site was a tidal marsh, but over the years became degraded by the dumping of soil from surrounding construction projects. A large portion of the site was filled approximately 100 years ago during the rapid urbanization of the Hercules/Pinole area. The site currently supports annual grasslands, a small drainage channel with adjacent pockets of tidal marsh vegetation, and a few small, scattered seasonal wetlands. The site is subject to flooding during 100-year storm events. The primary goals of this project are to:

- Restore tidal marsh habitat;
- Improve flood storage on lower Pinole Creek; and
- Provide additional recreational opportunities along the existing Bay Trail.

These goals are discussed in more detail in the section below.

3.2 Proposed Project

The tidal marsh restoration would be accomplished in phases through the excavation of approximately 40,000 cubic yards of fill previously deposited on the site and the installation of an improved box culvert and bridge structure, referred to as a CON-SPAN, and removal of the existing 36" wide outflow flap gate culvert that connects to Pinole Creek. The project includes the temporary installation of sheet piling along the northern portion of Pinole Creek to isolate tidal waters from project work and the eventual removal of the sheet piling to allow tidal connection from Pinole Creek to the constructed tidal marsh complex. An 18" drain culvert will also be abandoned in place with a concrete plug end as necessary adjacent to the Bay Trail. Approximately 140 linear feet of an existing 8" on-site sewer line would either be re-located into the east Pinole Creek channel bank or be lowered approximately 10 feet in order to accommodate the placement of the new tidal channel. In addition, an adjacent two-acre marsh-upland transitional area owned by the Chelsea-by-the-Bay Homeowners Association (HOA) will be incorporated into the design. Throughout this document the terms "Chelsea Wetlands Project Site", "proposed project" and "project site" can be used interchangeably and would include all of or portions of four parcels shown in Figure 1, owned by City of Hercules, CCCFCWCD, Pacific Gas & Electric and the Chelsea-by-the-Bay HOA parcel.

Restoration of the project site would include grading of the site to the appropriate elevations for establishing tidal marsh, and realigning of the existing on-site drainage channel to meander along an approximately 1,200-foot section that would tie back into the historic channel near the south east corner of the project. The new tidal channel would connect to Pinole Creek by creating 65 feet of new channel through the existing marsh area adjacent to Pinole Creek. The

meandering realigned channel would be deeper and wider to increase tidal exchange capacity and stormwater runoff conveyance. Site plans for the proposed project are shown in Figures 4a through 4d. Photographs of the site are provided in Figures 5a and 5b. Photographs of surrounding land uses are provided in Figures 6a and 6b.

Much of the perimeter of the project site (except where it borders the existing marsh-upland transitional area) is bordered by steep berms. The upland margins surrounding the tidal marsh would be graded to allow a gentle transition between these habitats which would require the full removal of approximately 36 existing ornamental trees along the berm to include the majority of their roots, which would be replaced on a one to one ratio with native trees in line with the City's Tree Preservation Ordinance. The upland margins of the restoration area would be planted with native vegetation while the marsh plain and channel would be predominantly allowed to self-colonize with tidal wetland plants.

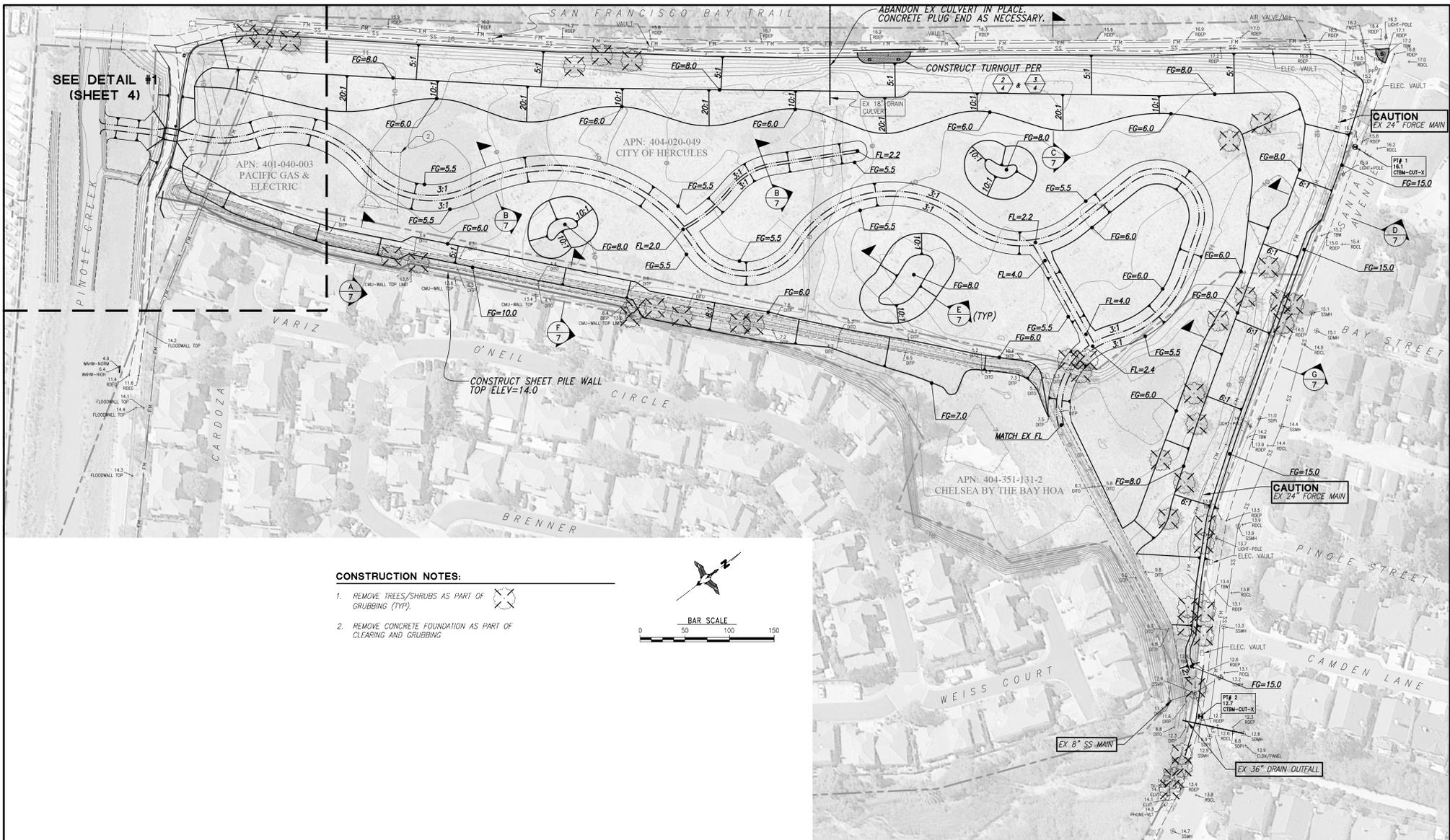


Figure 4a. Project Site Plan-Overview

Chelsea Wetlands Restoration Project



Date: November 2015
 Source: Ducks Unlimited Inc.

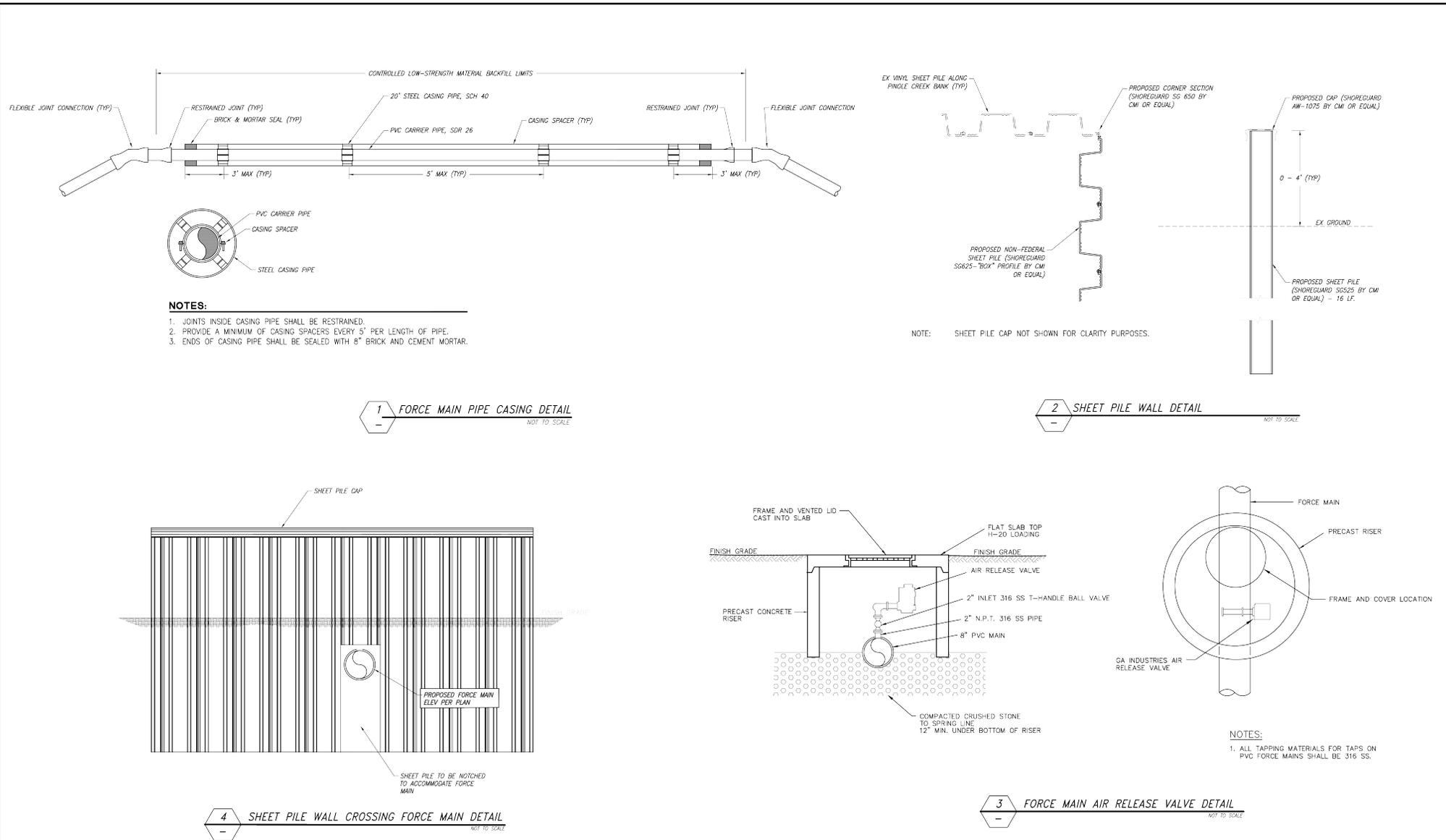
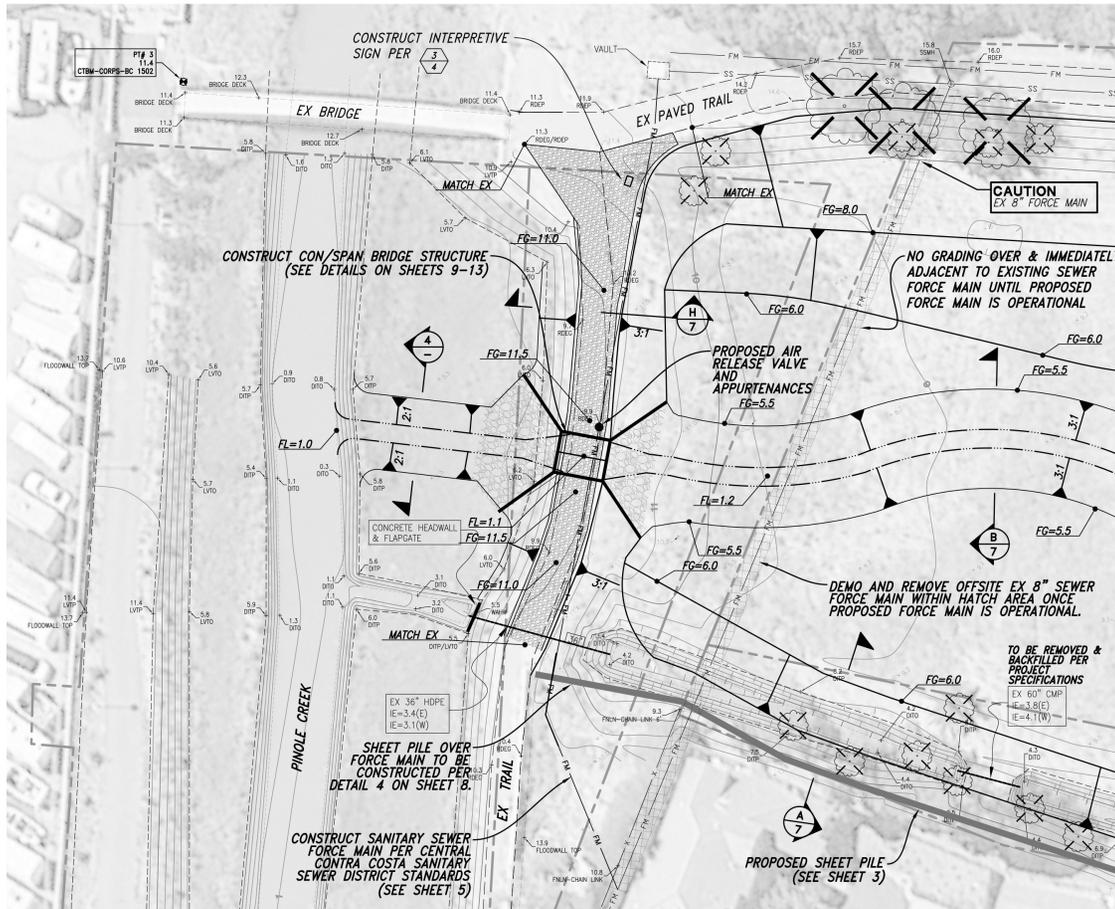


Figure 4b. Project Site Plan-New Sheet Pile Walls

Chelsea Wetlands Restoration Project



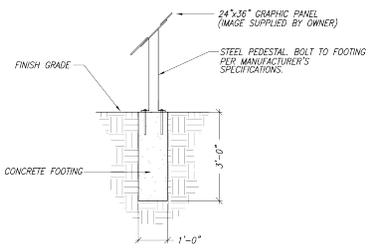
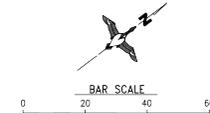
Date: November 2015
Source: Ducks Unlimited Inc.



1
-
DETAIL - GRADING & CON/SPAN STRUCTURE
SCALE: 1"=20'

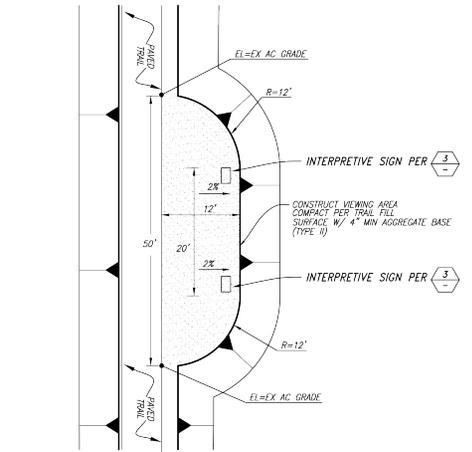
CONSTRUCTION NOTES:

- 1 REMOVE TREES/SHRUBS AS PART OF CLEARING AND GRUBBING (TYP.).
- 2 EXISTING 36" HDPE DRAIN, CONCRETE HEADWALL, AND FLAP GATE TO BE REMOVED. HDPE PIPE AND FLAP GATE SHALL BE PROTECTED AND SALVAGED. CONTACT ANTHONY MEDINA FOR PICKUP, (925) 313-7046, CONTRA COSTA FLOOD CONTROL DISTRICT.
- 3 DEMO AND REMOVE OFFSITE EXISTING 60" CMP.

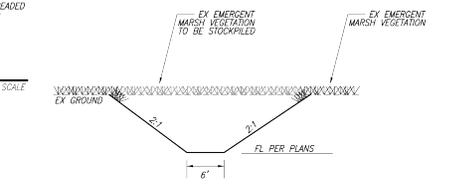


1. DISPLAY PANEL SHALL BE 1/4" DIGITAL HIGH PRESSURE LAMINATE, PANNER GRAPHICS, 1-800-544-8428 OR APPROVED EQUAL.
2. STEEL PEDESTAL SHALL BE A3 PEDESTAL AS MANUFACTURED BY HOPEWELL MANUFACTURING INC., 301-592-2342 OR APPROVED EQUAL.
3. DISPLAY PANEL SHALL BE MOUNTED TO THE PEDESTAL WITH STAINLESS STEEL THREADED INSERTS AND VANDAL RESISTANT SCREWS INSTALLED IN THE BACK OF THE PANELS.

3
-
TYPICAL DETAIL - INTERPRETIVE SIGN
NOT TO SCALE



2
-
SAN FRANCISCO BAY TRAIL TURNOUT DETAIL
NOT TO SCALE



4
-
PINOLE CREEK SWALE GRADING DETAIL
NOT TO SCALE

Figure 4c. Project Site Plan-Culvert and Trail Turnouts

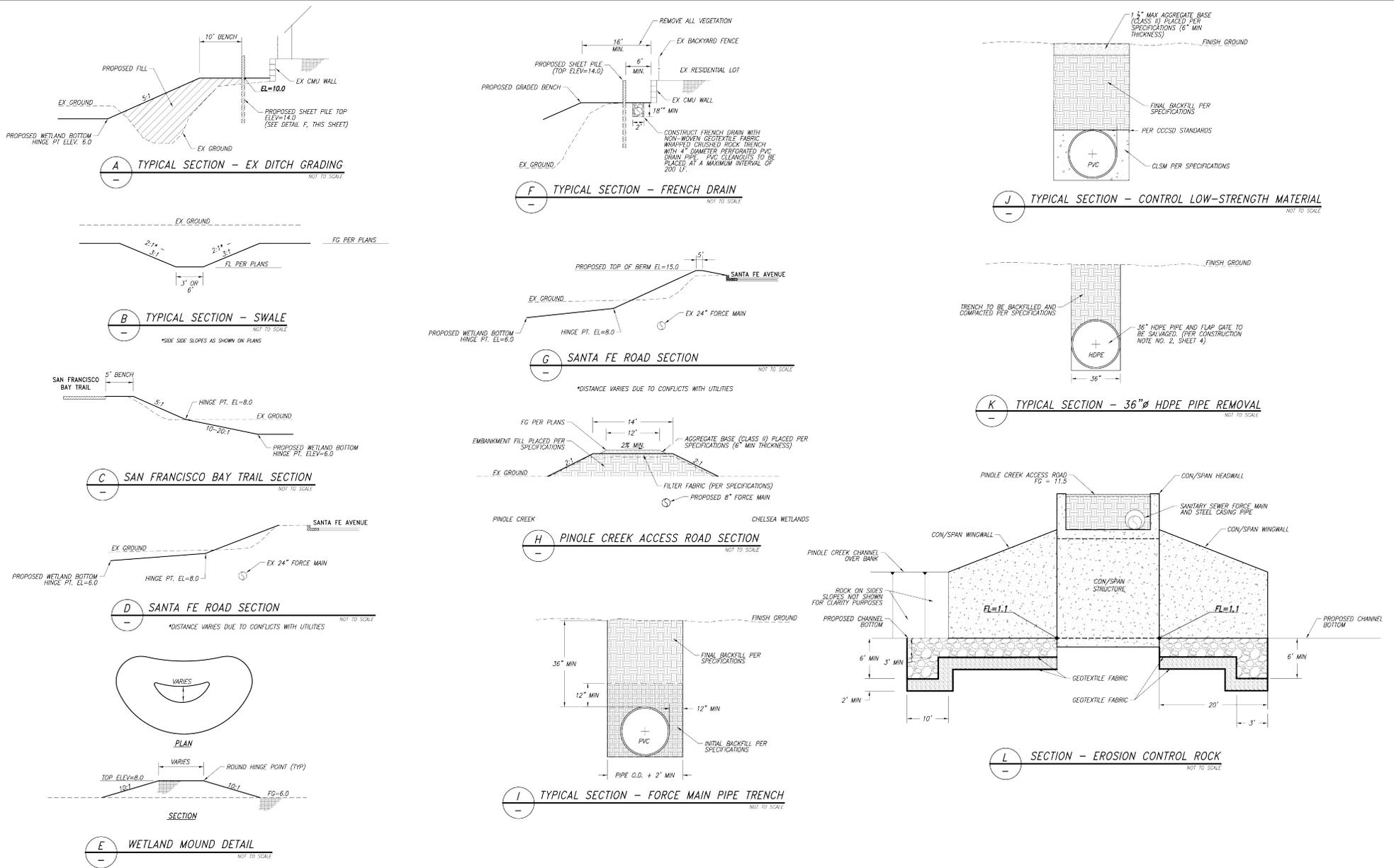


Figure 4d. Project Site Plan-Cross Section Details



View 1. View of the project area looking southwest from Santa Fe Avenue.



View 2. View of the project area looking northeast from SF Bay Trail.



View 3. View of the project area looking southwest from SF Bay Trail.



View 4. View of the project area looking southeast from SF Bay Trail.

Figure 5a. Existing Site Photos (1 of 2)

Chelsea Wetland Restoration Project





View 1. View of the project area looking north from Sante Fe Avenue.



View 2. View of the project area looking northwest from Sante Fe Avenue.



View 3. View of the project area looking northeast from utility access road.



View 4. View of the project area looking northeast from SF Bay Trail.

Figure 5b, Existing Site Photos (2 of 2)

Chelsea Wetland Restoration Project





View 1. View looking west of pedestrian bridge adjacent to project area.



View 2. View looking northwest of homes adjacent to the project area.



View 3. View looking southeast of Pinole Creek.



View 4. View looking west of railroad crossing over Pinole creek.

Figure 6a. Surrounding Site Photos (1 of 2)

Chelsea Wetland Restoration Project





View 1. View looking northeast of Railroad Avenue.



View 2. View northwest of railroad tracks adjacent to the project area.



View 3. View looking northwest of park adjacent to project site.



View 4. Southeast view of home and floodwall adjacent to the project area.

Figure 6b. Surrounding Site Photos (2 of 2)

Chelsea Wetland Restoration Project



The restoration activities would lead to a conversion of existing freshwater and salt marsh vegetation (both uplands and wetlands) to tidal salt marsh. This event would allow areas of salt marsh to expand due to the increased tidal prism on the project site, by altering current surface and groundwater elevations and salinities.

Infrastructure

An existing 36-inch culvert at the southwest side of the site would be removed and the embankment rebuilt (Figures 4a and 4c). A modular, precast bridge system (i.e., CON-SPAN) would be installed below the existing Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) maintenance road and channel bank between Pinole Creek and the project site. A new, approximately 65-foot long, channel would be excavated through existing salt marsh adjacent to Pinole Creek to connect the creek to the new tidal channel through the bridge system.

An 8-inch diameter sewer force main crosses the project site on the south end extending from the residential development on the east side of the project site out to San Pablo Bay on the west, parallel to Pinole Creek. The pipe is buried approximately one to two feet below the existing ground surface. Approximately 140 linear feet of the existing sewer line would either be re-located into the east Pinole Creek channel bank or be lowered approximately 10 feet in order to accommodate the placement of the new tidal channel. Replacement would be in accordance with City of Hercules Department of Public Works standards.

New earthen berms would be installed along Santa Fe Avenue and a sheet pile wall along eight of Chelsea-By-the Bay houses located on the southeastern side of the project site, adjacent to the marsh-upland area (see Figures 6a, 6b, and 6d). The sheet pile wall would be constructed of vinyl sheeting and would be installed to ensure that the minimum elevation of 14.0 feet would be achieved around the basin or as directed by the CCCFCWCD and the U.S. Army Corps of Engineers (USACE). The sheet pile wall would be set back six feet from the existing retaining wall structures below the residential lots and the project perimeter on Santa Fe Avenue. French drains would be installed in the space between the sheet pile wall and retaining walls along the base of the residential lots to ensure drainage away from the residences.

An 18" drain culvert will also be abandoned in place with a concrete plug end as necessary adjacent to the Bay Trail.

Public Access Improvements

Approximately 1,400 linear feet of the San Francisco Bay Trail forms the northwest boundary of the project site. As tidal marsh is not prevalent along the Bay Trail in this area of Contra Costa County, the restored Chelsea Wetlands would offer nature and wildlife viewing opportunities to Bay Trail users. With future developments planned in the area, including the recently-constructed Phase 1 Bay Trail to the Regional Intermodal Transit Center in Hercules and pending Bay Trail linkages to the northeast, usage of the Bay Trail in the project vicinity is expected to increase. To enhance passive recreation opportunities on the Bay Trail, up to two viewing areas would be located around the tidal marsh area. The viewing areas would be located in a turnout along the Bay Trail on the northwest side of the project site (Figures 4a and

4c). Interpretive signs would be installed in the turnout as well as on the south and north ends of the restored marsh area. The design of the interpretive signs would comply with signage requirements of the San Francisco Bay Trail, which is administered by the Association of Bay Area Governments (ABAG) and would describe tidal marsh ecology, the restoration process, and how the wetlands integrate into the Pinole Creek watershed.

3.3 Construction

This section describes the general equipment and methods that would be used in the construction of the project.

Site Access and Equipment Staging

All equipment, construction vehicles, and work crew vehicles would be staged on the project site and/or on the City right-of-way during construction. All equipment would access the site via Santa Fe Avenue on the northeast side of the project site. Dump trucks taking excavated fill from the construction site to an approved off-site disposal area would use Santa Fe Avenue to Hercules Avenue to San Pablo Avenue and on to Interstate 80 or Interstate 4 at the John Muir Parkway intersection.

Construction Schedule

Construction is anticipated to take place during the dry season (May through October) and would occur during daytime hours from 8:00 a.m. to 5:00 p.m. Monday through Friday. Construction would occur in one phase and would be completed in approximately eight to twelve weeks from project start date.

Grading

The restoration of the project site would require the excavation of approximately 40,000 cubic yards of accumulated fill material. Approximately 3,000 cubic yards of the excavated material would be reused on-site. The remaining 37,000 cubic yards of excavated materials would be hauled off-site to an approved disposal facility. The excavated soil would be placed in 20 cubic yard trucks for hauling. The project estimates that a maximum of approximately 95 truck trips per day for approximately five weeks would be required to export soil off-site.

3.4 Project-Related Approvals, Agreements, and Permits

The information contained in this Initial Study would be used by the City of Hercules (the CEQA Lead Agency) as it considers whether or not to approve the proposed project. If the project is approved, the Initial Study would be used by the City and responsible and trustee agencies in conjunction with various approvals and permits. These actions include, but may not be limited to, the following approvals by the agencies indicated:

City of Hercules

- Grading Permit
- Encroachment Permit
- Tree Removal Permit
- Easement to CCCFCWCD for portion of property the City will acquire from PG&E

Contra Costa County Flood Control and Water Conservation District

- Flood Control Permit for construction-related activities
- Process and enter into an agreement with the City of Hercules to define maintenance responsibilities within the Pinole Creek property and easements of the CCCFCWCD
- Review updates for Operation and Maintenance manual for Pinole Creek to be prepared by the City and/or Ducks Unlimited

San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Clean Water Act

- Section 401 Water Quality Certification

California Department of Fish and Wildlife (CDFW)

- Section 1602 Stream Alteration Agreement

Readiness Branch of the San Francisco District, U.S. Army Corps of Engineers

- Review of technical issues for the encroachments into the Pinole Creek flood control channel

U.S. Army Corps (USACE)

- Clean Water Act Section 404 Permit
- Section 408 Modifications to Flood Risk Reduction Projects

Other agencies and organizations that may rely on this Initial Study:

- East Bay Regional Park District
- East Bay Municipal Utility District
- Rodeo-Hercules Fire Protection District
- San Francisco Bay Trail – Association of Bay Area Governments
- Bay Area Ridge Trail Council
- Contra Costa County Resource Conservation District
- Friends of Pinole Creek Watershed

4.0 ENVIRONMENTAL SETTING

4.1 Historic Land Use

The project site was at one time part of a large complex of tidal marshes and mudflats that fringed San Pablo Bay. A large portion of the site was filled approximately 100 years ago during the rapid urbanization of the Hercules/Pinole area. Review of aerial photographs and historic topographic maps dated from the early 1900 until the 1970s showed some residential structures and a commercial building present on the project site. In photographs and maps dating from the early 1980s, all structures on the site were gone (ENGE0, 2008).

4.2 Current Land Use

The project site is zoned as Public/Quasi-Public Park (P/QP-P) and Public/Quasi-Public Open Space (P/QP-O) and currently supports annual grasslands, a small drainage channel with adjacent pockets of tidal vegetation, and a few small, scattered seasonal wetlands. The adjacent HOA parcel appears not to have been filled and still supports tidal salt marsh vegetation, seasonal wetlands, and annual grasslands. A small channel connected to Pinole Creek runs along the southern project boundary. Photographs of the existing site are shown in Figures 5a and 5b.

4.3 Surrounding Land Uses and Habitats

The project site is situated less than 500 feet southeast of San Pablo Bay. The site is separated from the Bay by a portion of the San Francisco Bay Trail, a limited access frontage road identified as Railroad Avenue, a two-track rail line and siding operated by Union Pacific Railroad, and an intertidal mudflat. Easements between the project site and the railroad include a petroleum pipeline operated by Kinder Morgan Energy Partners, L.P, two fiber-optic cables, and a PG&E natural gas line. Inbound and outbound sanitary sewer and a sewer force main are located under the existing adjacent Trail within City owned property while an East Bay Municipal Utility District main waterline is located within the existing Railroad Avenue right-of-way. The property to the south, beyond a multi-use trail and Pinole Creek, is a recreational vehicle storage yard, with residential development beyond. The Pinole-Hercules Wastewater Treatment Plant operated by the City of Pinole is located along the edge of San Pablo Bay to the southwest across the creek, frontage road, and railroad tracks. Lands to the south and east are single-family residential development (Figure 2).

Photographs of the land uses and habitat features surrounding the project site are shown in Figures 6a and 6b. Residential development occurs to the south and east of the project site. The Chelsea-by-the-Bay subdivision, which borders the project site to the south, was constructed in the late 1980s. The residential area to the east of the project site, on the east side of Santa Fe Avenue has been slowly developed over the past 100 years.

Pinole Creek runs west of the project site and is separated from the site by a paved and gravel walkway/access road. The portion of Pinole Creek bordering the project site is located approximately 800 feet upstream from San Pablo Bay, making it tidally influenced.

A muted tidal marsh,¹ which is a part of the East Bay Regional Park District's San Pablo Bay Regional Shoreline Park, is located approximately 140 feet to the northwest of the project site. The project site is separated from the tidal marsh by the San Francisco Bay Trail that sits atop a constructed berm, a row of eucalyptus trees, Railroad Avenue, and Union Pacific railroad right-of way.

A freshwater marsh is located to the southeast of the project site. The tidal channel traversing the southern project site boundary continues into and terminates within the freshwater marsh. Upon entering the marsh, vegetation within the channel (primarily cattails) becomes dense and open water areas are limited. A small drainage channel and two ponds are east and upslope of the freshwater marsh and connect to the marsh via a culvert under Santa Fe Avenue. This channel is completely choked with cattails and willows while the ponds contain open water and are generally surrounded by cattails.

¹ *Muted tidal marshes (also called damped tidal marshes) occur within the local tidal range for the current tidal epoch, and are subject to regular daily or monthly tidal action, but to an extent that is lessened by natural or unnatural controls on the tide. (San Francisco Bay Area Wetlands Regional Monitoring Program, www.wrmp.org/habitatdetail.html; accessed January 29, 2014)*

5.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

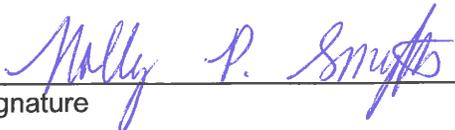
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is potentially significant unless mitigation is incorporated, as indicated by the checklist on the following pages.

Aesthetics	Greenhouse Gas Emissions	Population/Housing
Agricultural Resources	XX Hazards/Hazardous Materials	Public Services
XX Air Quality	XX Hydrology/Water Quality	Recreation
XX Biological Resources	Land Use/Planning	Transportation/Traffic
XX Cultural Resources	Mineral Resources	Utilities
XX Geology and Soils	XX Noise and Vibration	XX Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

- I find that the project **COULD NOT** have a significant effect on the environment and a **NEGATIVE DECLARATION** will be prepared.
- I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- I find that the project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- I find that the project **MAY** have a "Potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.
- I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



 Signature

7/13/2016

 Date

Holly P. Smyth, AICP, Planning Director
 Print Name and Title

Initial Study Checklist

This section describes the existing environmental conditions in and near the project area and evaluates environmental impacts associated with the proposed project. The environmental checklist, as recommended in the CEQA Guidelines (Appendix G), was used to identify environmental impacts that could occur if the proposed project is implemented. The right-hand column in the checklist lists the source(s) for the answer to each question. The cited sources are identified at the end of this section.

Each of the environmental categories was fully evaluated, and one of the following four determinations was made for each checklist question:

“No Impact” means that no impact to the resource would occur as a result of implementing the project.

“Less than Significant Impact” means that implementation of the project would not result in a substantial and/or adverse change to the resource, and no mitigation measures are required.

“Less than Significant with Mitigation Incorporated” means that the incorporation of one or more mitigation measures is necessary to reduce the impact from potentially significant to less than significant.

“Potentially Significant Impact” means that there is either substantial evidence that a project-related effect may be significant, or, due to a lack of existing information, could have the potential to be significant.

Each question on the checklist was answered by evaluating the project as proposed, that is, without considering the effect of any added mitigation measures. The checklist includes a discussion of the impacts and mitigation measures that have been identified. Sources used in this Initial Study are numbered and listed in Section 7.0.

5.1 Aesthetics

	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
I. AESTHETICS — Would the project:					
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Environmental Setting

The project site is located along the eastern shore of San Pablo Bay. The site currently exists as undeveloped land basically owned by the City of Hercules and Chelsea-by-the-Bay Homeowners Association. The site is bordered by housing developments to the south and east, the Amtrak/Union Pacific Railroad to the north, and the Pinole Creek flood control channel to the west. There is currently no lighting or structures on the project site. Views of San Pablo Bay are from Santa Fe Avenue, the adjacent Railroad Park, the Bay Trail, the trail adjacent to Pinole Creek, and the pedestrian bridge over Pinole Creek.

Discussion of Impact

a, b) *Would the proposed project have a substantial adverse effect on a scenic vista, or substantially damage scenic resources including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?*

Less than Significant. For the purposes of this analysis, a scenic vista is defined as a vantage point with a broad and expansive view of a significant landscape feature (e.g., a mountain range, the Bay, lake, or coastline) or of a significant historical or architectural feature (e.g., views of a historic tower). Under this definition, the proposed project would not significantly alter or obstruct a scenic vista. While non-native trees would be removed between the Bay Trail and the wetlands to accommodate wetlands restoration, with some smaller native replacement trees being planted, no rock outcroppings or similar recognized visual resources exist on the site, and none would be damaged through construction of the proposed project. Additionally, other existing trees on the

west side of the Bay Trail would remain intact helping to maintain some visual separation.

Public viewing areas around the project site include Santa Fe Avenue, Railroad Park, the Bay Trail, the trail adjacent to Pinole Creek, and the pedestrian bridge over Pinole Creek. Sightlines from these public areas are restricted by surrounding development, backyard fences, and mature vegetation, and visual barriers such as the Bay Trail berm and the railroad tracks. Views from higher elevations along Santa Fe Avenue would not be altered as a result of the proposed project because the project's proposed features would be below the sightline of the surrounding area. In addition, views of San Pablo Bay from higher elevations east of the project site are partially or fully obstructed by houses. Following re-vegetation of the project site, there would be a net improvement in views over existing conditions. Therefore, the project would have a less than significant impact on these resources.

c) *Would the proposed project substantially degrade the existing visual character or quality of the site and its surroundings?*

Less than Significant. The project would change the visual character of the site by restoration of the tidal marshlands by removing accumulated fill and recontouring. During the construction phase, portions of the site would be disturbed to alter the hydrological conditions of the site, which would temporarily degrade views from surrounding public areas, including the Bay Trail, the trail adjacent to Pinole Creek, and the pedestrian bridge over Pinole Creek. The activities would be temporary in nature and not substantially degrade views of the existing setting. Therefore, following re-vegetation of the project site, there would be a net improvement in views over existing conditions. Therefore, impacts would be less than significant.

d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

No Impact. The project would not create a new permanent source of light or glare because no lighting would be installed at the site. The proposed project would involve vegetation and debris removal from the restoration of tidal marshland, no nighttime construction would take place.

5.2 Agricultural and Forestry Resources

II. AGRICULTURAL AND FORESTRY RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1, 4
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1, 4
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1, 4
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1, 4
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use??	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1, 4

Environmental Setting

The project site is located in a suburban area surrounded by residential neighborhoods, an RV storage area, and railroad tracks. Historically, the site was tidal marshland, but was filled in at some point in the early 1900s to support development. No records of agricultural activities occurring on the site were found during document reviews.

Discussion of Impacts

- a-e) Would the proposed project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; conflict with existing zoning for agricultural use, or a Williamson Act contract; conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland; or result in or cause to result in the loss of forest land or conversion of forest land to non-forest use?***

No Impact. According to the 2010 Farmland Mapping and Monitoring Program from the State Department of Conservation, the proposed project is located in an area that is designated as Other Land and the proposed project would, therefore, have no impact on agricultural uses. The project area is also not zoned for agricultural use or under a Williamson Act contract. The proposed project would not result in the conversion of forest land or farmland to a non-agricultural use, and would thus have no impact on agricultural resources.

5.3 Air Quality

III. **AIR QUALITY**— Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13

Environmental Setting

Discussion of Criteria Air Pollutants

The project is located in the western portion of the Contra Costa County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}).

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NOx). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter, or particles that have a diameter of 10 micrometers or less (PM₁₀), and fine particulate matter, where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Discussion of TACs

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a highway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to that for criteria air pollutants that have established ambient air quality standards. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an ambient air quality standard or emission-based threshold.

Diesel Particulate Matter

Diesel exhaust, in the form of diesel particulate matter (DPM), is the predominant TAC in urban air with the potential to cause cancer. It is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to the California Air Resource Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under the State's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program. The U.S. Environmental Protection Agency (EPA) and CARB have adopted low-sulfur diesel fuel standards in 2006 that reduces diesel particulate matter substantially. CARB recently adopted new regulations requiring the retrofit and/or replacement of construction equipment, on-highway diesel trucks, and diesel buses in order to lower fine particulate matter (PM_{2.5}) emissions and reduce statewide cancer risk from diesel exhaust.

Fine Particulate Matter (PM_{2.5})

Particulate matter in excess of state and federal standards represents another challenge for the Bay Area. Elevated concentrations of PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest existing sensitive receptors to the project site are the residences on Weiss Court and O'Neil Circle that are adjacent to the southern boundary of the site. Additional residences are farther away to the south and northeast of the site.

Discussion of Impacts

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These Thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2011). The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 2.

BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order requires BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds (Cal. Court of Appeal, First Appellate District, Case Nos. A135335 & A136212). CBIA sought review by the California Supreme Court on three issues, including the appellate court's decision to uphold BAAQMD's adoption of the thresholds, and the Court granted review on just one: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users of a proposed project? In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project – known as “CEQA-in-reverse” – is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). The Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's ruling. Accordingly, the case is currently pending back in the Court of Appeal. Because the Supreme Court's holding concerns the

effects of the environment on a project (as contrasted to the effects of a proposed project on the environment), and not the science behind the thresholds, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project.

Table 2. Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82	82	15
PM _{2.5}	54	54	10
CO	Not Applicable	9.0 ppm (8-hr) or 20.0 ppm (1-hr)	
Fugitive Dust	Best Management Practices	Not Applicable	
Health Risks and Hazards for Single Sources			
Excess Cancer Risk	>10 per one million		
Hazard Index	>1.0		
Annual average PM _{2.5}	>0.3 µg/m ³		
Health Risks and Hazards for Combined Sources (all sources within 1,000 foot zone of influence)			
Excess Cancer Risk	>100 per one million		
Chronic Hazard Index	>10.0		
Annual Average PM _{2.5}	>0.8 µg/m ³		
Greenhouse Gas Emissions			
GHG Annual Emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons or 4.6 metric tons per capita		
Note: ROG = reactive organic gases, NO _x = nitrogen oxides, PM ₁₀ = coarse particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM _{2.5} = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less; and GHG = greenhouse gas.			

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The project would not conflict with or obstruct any applicable air quality plans.

b) Violate any air quality standard or contribute to an existing or projected air quality violation?

Less than Significant with Mitigation Incorporated. The Bay Area is considered a non-attainment area for ground-level ozone and fine particulate matter (PM_{2.5}) under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for respirable particulates or particulate matter with a diameter of less than 10 micrometers (PM₁₀) under the California Clean Air Act, but not the Federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM₁₀, the BAAQMD

has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NOx), PM₁₀ and PM_{2.5} and apply to both construction period and operational period impacts. The project would result in temporary air pollutant emissions during construction. There would be no routine operational emissions.

The California Emissions Estimator Model, Version 2013.2.2 (CalEEMod) was used to predict construction emissions. CalEEMod is a computer model developed by the South Coast Air Quality Management District (SCAQMD) with cooperation of other California Air Districts to estimate air pollutant and GHG emissions from land use development projects. This model also predicts emissions associated with construction activities from land use projects. The model is recommended by BAAQMD for use in estimating emissions from land use development projects. Inputs to CalEEMod were based upon the project size and anticipated schedule for construction of the different project phases and construction activities. Construction activities include demolition and site preparation; grading and excavation; removal of an existing culvert and installation of a con-span culvert; lowering of an existing sewer line; and installation of flood walls along Santa Fe Avenue and in a portion of the southern part of the site. The number and types of construction equipment and diesel vehicles, along with the anticipated length of their use for different phases of construction, was based on information provided by the project applicant. This included the types of equipment used, estimated number of days the equipment would operate for each phase, and the average number of hours per day of operation. Off-road equipment horsepower estimates were based on the defaults used by CalEEMod, unless otherwise provided by the applicant. The number of trucks needed for project construction was calculated by CalEEMod based on the amount of material to be hauled away during demolition and excavation. Construction of the project is anticipated to occur over about a 6-month period, starting in June of 2016. Based on the provided schedule, there would be 124 days of construction.

The CalEEMod model provided emissions for the off-road construction equipment and on-road vehicles. The on-road emissions are a result of haul truck and worker travel. The model default trip lengths were used to represent worker travel and haul truck travel to and from the construction site.

Table 3 reports the emissions from construction activities and compares them to significance thresholds. The CalEEMod model provided the total emissions in tons. The total emissions were divided by the number of construction days to compute average daily emissions. The projected construction schedule, CalEEMod output worksheets, and DPM emission calculations are provided in Appendix A.

Table 3. Construction Period Emissions

Scenario	ROG	NO_x	PM₁₀ Exhaust	PM_{2.5} Exhaust
Unmitigated total construction emissions (tons)	0.37 tons	4.33 tons	0.18 tons	0.16 tons
Average daily emissions (pounds) ¹	6.0 lbs.	69.8 lbs.	2.9 lbs.	2.6 lbs.
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs.	54 lbs.	82 lbs.	54 lbs.
Exceed Threshold?	No	Yes	No	No
Mitigated total construction emissions (tons)	--	2.13	--	--
Average daily mitigated emissions (pounds) ¹	--	34.4	--	--
Significant after mitigation?	--	No	--	--
Notes: ¹ Assumes 124 workdays				

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀ and PM_{2.5}. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions.

Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. The highest measured level over any 8-hour averaging period during the last 3 years in the Bay Area is less than 3.0 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. Intersections affected by the project would have traffic volumes less than the BAAQMD screening criteria and, thus, would not cause a violation of an ambient air quality standard or have a considerable contribution to cumulative violations of these standards.²

Project emissions of NO_x, although temporary, would exceed BAAQMD significance thresholds. Since NO_x is a precursor pollutant to ozone and the Bay Area is considered nonattainment for this pollutant, the project would contribute to an existing or projected air quality violation. Implementation of Mitigation Measures AIR-1 and AIR-2 would reduce this impact to a level of less than significant.

² For a land-use project type, the BAAQMD CEQA Air Quality Guidelines state that a proposed project would result in a less than significant impact to localized carbon monoxide concentrations if the project would not increase traffic at affected intersections with more than 44,000 vehicles per hour.

Mitigation Measure AIR-1: Include basic measures to control dust and exhaust during construction.

During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level. The contractor shall implement the following best management practices that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Implementation of Mitigation Measure AIR-1 would be consistent with recommendations in the BAAQMD CEQA Air Quality Guidelines for controlling fugitive dust emissions that contribute to localized elevated concentrations of PM₁₀ and PM_{2.5}. The impact would be reduced to less than significant.

Mitigation Measure AIR-2: Use of newer, retrofitted, or alternatively powered construction equipment to minimize emissions. Such equipment selection would include the following:

1. All diesel-powered construction equipment larger than 50 hp and operating on site for more than two days continuously shall meet U.S. EPA NO_x and particulate matter emissions standards for Tier 3 engines or equivalent.\

2. At least 80 percent of the diesel-powered construction equipment operating on site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 4 engines or equivalent. Equipment retrofitted with CARB Level 3 Verified Diesel Emissions Control Strategy (VDECS) would meet this standard.

The construction contractor may use other measures to minimize construction period NOx and DPM emissions to reduce the predicted cancer risk below the thresholds. Such measures may be the use of alternative powered equipment (e.g., LPG powered forklifts), alternative fuels (e.g., biofuels), added exhaust devices, or a combination of measures, provided that these measures are approved by the lead agency.

The effect of implementing Mitigation Measure AIR-2 was modeled using CalEEMod. The use of diesel-powered construction equipment that meets U.S. EPA Tier 3 standards would reduce NOx emissions by over 50 percent. The CalEEMod modeling indicates that NOx construction emissions would be reduced to 34 pounds per average day (see Table 3). Total annual PM_{2.5} emissions, which include fugitive emissions, would be reduced by at least 65 percent such that the maximum concentration would be less than 0.23 µg/m³. Diesel particulate emissions (considered exhaust PM_{2.5} emissions) would be reduced by over 90 percent with Tier 4 equipment or use of CARB Level 3 VDECS. Equipment that meets at least Tier 3 and with 80-percent of equipment using maximum control of Tier 4 or CARB Level 3 VDECS, maximum cancer risks for infant exposure would be lowered to 9.4 chances per million.

- c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?***

Less than Significant with Mitigation Incorporated. As discussed above, the project would have construction period NOx emissions that exceed significance thresholds. Other project emissions would be below the significance thresholds. The project emissions of NOx would cumulatively contribute to increases in ozone precursor pollutant emissions. Implementation of Mitigation Measures AIR-1 and AIR-2 would reduce this impact to a level of less than significant.

- d) *Expose sensitive receptors to substantial pollutant concentrations?***

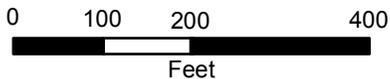
Less than Significant with Mitigation Incorporated. Project construction would emit fine particulate matter or PM_{2.5} from equipment exhaust, truck and other traffic exhaust and fugitive dust. Diesel particulate matter, which is a TAC, could subject nearby sensitive receptors to unhealthy pollutant concentrations. Sensitive receptors, residences, are located adjacent to the project site. A health risk assessment of the project construction activities was conducted that evaluated potential health effects at these nearby residences from construction emissions of diesel particulate matter (DPM) and PM_{2.5}. A dispersion model was used to predict the off-site concentrations resulting from project construction so that lifetime cancer risks and other health effects could be predicted. Figure 1 shows the project site and sensitive receptor locations used in the air quality dispersion modeling analysis where potential health impacts were evaluated.

The CalEEMod model provided total annual PM_{2.5} exhaust emissions (assumed to be diesel particulate matter) for the off-road construction equipment and for exhaust emissions from on-road vehicles (haul trucks and worker vehicles), with total emissions of 0.1558 tons (312 pounds). The on-road emissions are a result of haul truck and worker travel. A trip length of 0.5 miles was used to represent haul truck travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive PM_{2.5} dust emissions were calculated by CalEEMod as 0.1744 tons (349 pounds) for the overall construction period.

The U.S. EPA ISCST3 dispersion model was used to predict concentrations of DPM and total PM_{2.5} at existing sensitive receptors in the vicinity of the project site. The ISCST3 dispersion model is a BAAQMD recommended model for use in refined modeling analysis of CEQA projects. The ISCST3 modeling utilized area sources to represent the different on-site construction activities. For each construction activity, area sources were used to model exhaust emissions and fugitive dust (PM_{2.5}) emissions. To represent the construction equipment exhaust emissions, an emission release height of 6 meters was used for the area sources. The elevated source height reflects the height of the equipment exhaust pipes and buoyancy of the exhaust plume. For modeling fugitive PM_{2.5} emissions, a near ground level release height of 2 meters was used for the area sources. Emissions from truck travel at or near the project site were included in the area sources. Emissions were modeled as occurring daily between 7 am - 4 pm. The model used a 5-year data set (1996 - 2000) of hourly meteorological data from the former Pacific Refinery site in Hercules, about 1.4 miles northeast of the project site, available from the BAAQMD. Annual DPM and PM_{2.5} concentrations from construction activities were predicted for the construction period based on the 5 years of meteorological data. DPM and PM_{2.5} concentrations were calculated at nearby residences at a receptor height of 1.5 meters (4.9 feet).



Figure 7. Project Construction Site and Nearby Sensitive Receptor Locations



Chelsea Wetlands
 Contra Costa County, California

Date: March 2016
 Source: Illingworth & Rodkin

The maximum-modeled DPM concentration occurred at a residence adjacent to the project site. The location of this receptor is identified using a yellow circle on Figure 7. Increased cancer risks were calculated using the maximum modeled annual DPM concentrations. This health risk assessment used the recent 2015 OEHHA risk assessment guidelines and CARB guidance. While the OEHHA guidelines use substantially more conservative assumptions than the current BAAQMD guidelines, BAAQMD has not formally adopted recommended procedures for applying the newest OEHHA guidelines. BAAQMD is in the process of developing new guidance and has developed proposed HRA Guidelines as part of the proposed amendments to Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.³ Exposure parameters from the OEHHA guidelines and newly proposed BAAQMD HRA Guidelines were used in this evaluation. The most conservative assumptions were used, which assume an infant would be present at all sensitive receptors or residences. Since the modeling was conducted assuming emissions occur over a full year (i.e., an annual average concentration), the default BAAQMD exposure period of 350 days per year was used. Results of this assessment indicate a maximum incremental residential cancer risk, assuming infant exposure, would be 33.7 cancer cases per million. The increased cancer risk assuming adult exposure would be 0.6 cancer cases per million. While the residential adult exposure cancer risk is below the BAAQMD's threshold of 10 in one million excess cancer cases per million, the increased cancer risk for a residential infant exposure is greater than the significance threshold.

The modeled maximum annual PM_{2.5} concentration was 0.68 micrograms per cubic meter (µg/m³), which is greater than the threshold of 0.3 µg/m³ used to judge the significance of impacts for PM_{2.5}. Potential non-cancer health effects due to chronic exposure to DPM were also evaluated. The chronic inhalation reference exposure level (REL) for DPM is 5 µg/m³. The maximum predicted annual residential DPM concentrations was 0.21 µg/m³ which is much lower than the REL. The Hazard Index (HI), which is the ratio of the annual DPM concentration to the REL, is 0.04 for a residential exposure. This HI is much lower than the BAAQMD significance criterion of a HI greater than 1.0. Implementation of Mitigation Measures AIR-1 and AIR-2 would reduce this impact to a level of less than significant.

In terms of cumulative community risk impacts, there are no other substantial sources of TAC or PM_{2.5} emissions near the maximally exposed receptor, with the exception of the Amtrak railroad. This railroad is over 500 feet from the receptors most affected by the project is considered not to have a substantial impact where a significant cumulative risk impact would occur.

Appendix A includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

³ BAAQMD, 2016. *Workshop Report. Proposed Amendments to Air District Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. Appendix C. Proposed Air District HRA Guidelines. January.*

e) Create objectionable odors affecting a substantial number of people?

Less than Significant. The project would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off site by resulting in confirmed odor complaints. The project would not include any operational sources of significant odors that would cause complaints from surrounding uses. This would be a less-than-significant impact.

5.4 Biological Resources

IV. BIOLOGICAL RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	Source
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6,9
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6,9
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6,9
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6,9
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2,6,9
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,9

Environmental Setting

The analysis of potential biological impacts has incorporated information from a Rare Plant Survey Report (WRA 2013, Appendix B), multiple site visits by WRA, a request for informal consultation letter report (WRA 2014), a review of the Biological Evaluation Report (BER) completed by Wetlands and Water Resources, Inc. (WWR) in May 2009, and an updated examination of the literature to capture special-status wildlife species documented since 2009.

For the purpose of describing biological resources, the project site encompasses a small drainage channel that runs east from Pinole Creek in the southern project site boundary and terminates within an off-site freshwater marsh to the southeast. Diked areas also support scattered seasonal wetlands, composed primarily of pickleweed (*Salicornia pacifica*), saltgrass (*Distichlis spicata*), and common reed (*Phragmites australis*), among other wetland species. These wetlands are particularly prevalent in the eastern portion of the project site. Pinole Creek is located approximately 800 feet upstream from San Pablo Bay where it borders the west of the project site, making it tidally influenced. Pinole Creek is lined on the western slope by brackish marsh, which is separated from the site by a narrow, paved and gravel walkway/access.

A large portion of the site was filled approximately one-hundred years ago during the rapid urbanization of the Hercules/Pinole area. With historic topography and tidal influence gone, the site was largely converted into uplands with a narrow drainage channel along the southern boundary. The Chelsea parcel is zoned as Open Space and Park and currently supports annual grasslands and small, scattered seasonal wetlands. The adjacent HOA parcel appears not to have been filled and still supports tidal salt marsh, seasonal wetlands, and annual grasslands. The areas surrounding the project site were slowly developed over time and the site is now bordered by housing developments to the south and east, the Amtrak/Union Pacific Railroad to the north, and the Pinole Creek flood control channel to the west. The Chelsea-by-the-Bay subdivision, which borders the project site to the south, was constructed in the late-1980s. The residential area to the east of the project site, on the east side of Santa Fe Avenue has been slowly developed over the past 100 years.

A muted tidal marsh that is a part of the East Bay Regional Park District's San Pablo Bay Regional Shoreline Park, occurs approximately 140 feet to the northwest of the project site. The tidal marsh is separated from the site by a constructed berm (containing the San Francisco Bay Trail), a row of planted eucalyptus trees, Railroad Avenue (now closed to vehicles), and the Union Pacific railroad right-of way (containing railroad tracks and areas of compacted dirt and gravel). The tidal marsh is dominated by pickleweed (*Sarcocornia pacifica*), but contains other tidal marsh species including fleshy jaumea (*Jaumea carnosa*) and marsh gumplant (*Grindelia stricta* var. *angustifolia*).

A freshwater marsh is located to the southeast of the project site. The marsh is generally choked with cattails (*Typha* spp.) with few open water areas visible. Willows (*Salix* spp.) occur in locations throughout the marsh, as well as dense stands of Himalayan blackberry (*Rubus discolor*). Table 4 summarizes the approximate area of biological communities present within the project site. These biological communities are discussed in more detail below.

Table 4. Summary of Biological Communities within the Project Area

Biological Community Type	Area (acres)
Annual Grassland	9.08
Pickleweed Wetland	0.88
Salt-Alkali Marsh	0.23
Brackish Bulrush-Cattail Wetland	0.08
Freshwater Seasonal Wetland	0.44
Coastal Brackish Marsh	0.14
Brackish/Salt Marsh Drainage Channel	0.20

Non-Sensitive Biological Communities

Annual Grassland

The project site as a whole is dominated by annual grassland, which occur east of the channel bank that separates the diked parcels from Pinole Creek. The grassland along the northern and eastern site boundaries appear to be mowed regularly. Non-native grasses, including wild oats (*Avena* sp.), and creeping wildrye (*Leymus triticoides*), are abundant on the site. Other dominant herbaceous vegetation includes spreading hedge parsley (*Torilis arvensis*) spring vetch (*Vicia sativa*), ripgut brome (*Bromus diandrus*), and cutleaf geranium (*Geranium dissectum*). Large stands of field mustard (*Brassia rapa*) and scattered patches of curly dock (*Rumex crispus*), Harding grass (*Phalaris aquatica*), and salt grass (*Distichlis spicata*) also occur within the grassland. Several isolated pockets of freshwater seasonal wetlands scattered throughout the annual grassland where rainwater accumulates in topographic depressions.

A stand of coyote brush (*Baccharis pilularis*) occurs in the western corner of the project site. This native shrub quickly establishes in disturbed areas. A stand of coyote brush, intermixed with Himalayan blackberry (*Rubus armeniacus*), also occurs in the southeast corner of the site. Approximately ten non-native palm trees (*Phoenix* sp.) occur along the eastern site boundary. The southern site boundary contains a row of moderate-sized Aleppo pine (*Pinus halepensis*) and eucalyptus trees, which were likely planted as a wind/visual barrier for the adjacent development. Several Northern California walnut (*Juglans hindsii* [*J. californica* var. *h.*]) trees are also present along the northern project area boundary.

Sensitive Biological Communities

Pickleweed Wetland

Pickleweed wetlands (0.88 acre) occur in low-lying portions of the project site that are dominated by pickleweed (*Salicornia pacifica*). These areas pond water following rain events and likely have remnant soil salinities, which favor the establishment of salt-tolerant vegetation. Some of the lower elevation areas on the HOA parcel also receive occasional spillover of brackish water from the channel during extreme high tides and storm events.

Salt-Alkali Marsh

Salt-alkali marsh habitat (0.23 acre) is found in a drainage channel traversing the southern project boundary. Cordgrass (*Spartina* sp.) and alkali bulrush (*Bolboschoenus maritimus*) occur within lower portions of the channel, transitioning into a matrix of pickleweed, saltgrass, and marsh gumplant (*Grindelia stricta* var. *angustifolia*). Plant species bordering the channel include Harding grass, wild radish (*Raphanus raphanistrum*), and various non-native annual grasses.

Brackish Bulrush-Cattail Wetland

Brackish bulrush-cattail wetlands (0.08 acre) occur in the on-site channel, upstream of the salt-alkali marsh habitat described above. The vegetation in the channel is dominated by narrow-leaf cattail (*Typha angustifolia*) and California bulrush (*Schoenoplectus californicus*) and transitions into a matrix of more salt-tolerant species at higher elevations (saltgrass, pickleweed, marsh gumplant). This transition to salt tolerant species is likely due to remnant soil salinity and intrusion of brackish water during storm events.

Freshwater Seasonal Wetlands

Isolated pockets of freshwater seasonal wetlands (0.44 acre) were scattered throughout the annual grassland where rainwater accumulates in topographic depressions (WWR 2009). These freshwater seasonal wetlands occur primarily in isolated depressions fed by rainwater.

Brackish/Salt Marsh Drainage Channel

A small drainage channel (0.20 acre) occurs east and downslope of the freshwater marsh. This channel is completely choked with cattails. The marsh contains open aquatic habitat and are generally surrounded by cattails.

Coastal Brackish Marsh

The banks of the portion of Pinole Creek bordering the project site support coastal brackish marsh (0.14 acre), which average approximately 40 feet wide on the eastern bank. Dominant species include pickleweed, saltgrass, marsh gumplant (*Grindelia stricta*), and cordgrass (*Spartina* sp.). As noted above, a small “vegetated waters” channel connected to Pinole Creek runs along the southern project boundary, carrying surface water from the project site through a tide gate and into Pinole Creek. Cordgrass and alkali bulrush (*Bolboschoenus maritimus*) occur within lower portions of the channel, transitioning into a matrix of pickleweed, saltgrass, and marsh gumplant. Plant species bordering the channel include Harding grass (*Phalaris aquatic*), wild radish (*Raphanus raphanistrum*), and various non-native annual grasses. The channel is

approximately one foot wide and contained several inches of stagnant or slow-moving water during the site visits.

Special-Status Species

Plants

On May 18 and July 31, 2013, biologists from WRA, Inc. conducted a rare plant survey on the project site (WRA 2013; see Appendix B). These field visits coincided with peak blooming periods for all special-status plant species with potential to occur in the project area. Of the 49 special-status plant species known to occur in the vicinity of the project area, no plant species were identified with high potential to occur within the project site, nine species were determined to have a moderate potential to occur in the project site, though none of the species were observed during special-status surveys. The nine plant species that were determined to have moderate potential included Alkali milk-vetch (*Astragalus tener* var. *tener*, CNPS Rank 1B.2), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii* [*Hemizonia p.* ssp. *c.*], CNPS Rank 1B.1), Pappose tarplant (*Centromadia parryi* ssp. *parryi* [*Hemizonia p.* ssp. *p.*], CNPS Rank 1B.2), Point Reyes bird's beak (*Chloropyron maritimum* ssp. *palustre* [*Cordylanthus maritimus* ssp. *palustris*], CNPS Rank 1B.2 species), Soft bird's-beak (*Chloropyron molle* ssp. *molle* [*Cordylanthus mollis* ssp. *mollis*], Federal Endangered, State Rare, CNPS Rank 1B.2), San Joaquin spearscale (*Extriplex joaquiniana* [*Atriplex j.*], CNPS Rank 1B.2), Hairless popcorn-flower (*Plagiobothrys glaber*), CNPS Rank 1A), California seablite (*Suaeda californica*, Federal Endangered, CNPS Rank 1B.1), and Saline clover (*Trifolium hydrophilum*, CNPS Rank 1B.2). Most of the species found in the background literature review occur in habitats not present in the project area, or on unique soils types which do not occur in the project area.

Additionally, the northern California black walnut (*Juglans hindsii*) was observed within the project site. Northern California black walnut, a CNPS Rank 1B.1 listed species, is a deciduous tree in the walnut family (Juglandaceae) that occurs in riparian forest and riparian woodland from 0 to 440 meters in elevation. The species blooms from April to May. Native stands are known from Contra Costa and Solano Counties (CNPS 2013). Native stands are considered sensitive by CNPS and under CEQA. Walnut growers routinely cross *J. hindsii* with one of several other North American black walnut species as rootstock for walnut orchards in the state. Many orchards are adjacent to riparian vegetation, and animals (ground squirrels, jays, etc.) and water disperse the walnuts widely in both rural and suburban settings (Sawyer et al. 2009). The resulting introduced, or non-native, stands are not considered sensitive by CNPS or under CEQA. Walnut trees in the project area are not native stands and likely originated via wildlife dispersal as described above. Therefore, Northern California black walnut trees within the project area are not considered sensitive.

Wildlife

To evaluate the potential for special-status wildlife species within the project site, WRA performed a literature review of documented species occurrences and ranges within the vicinity of the project site, performed multiple site visit surveys, conducted an informal consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS)

under Section 7 of the Endangered Species Act (ESA), and Concurrence from California Department of Fish and Wildlife (CDFW) under Section 2081 of the California Endangered Species Act, and reviewed an existing Biological Evaluation Report prepared for the area (WWR 2009). Copies of these documents are included in Appendix B.

Based on a review of these resources, the following 22 special status species were identified as potentially occurring within the vicinity of the project site and therefore warranted additional evaluation: Pallid bat (*Antrozous pallidus*), Salt marsh harvest mouse (*Reithrodontomys raviventris*), San Pablo vole (*Microtus californicus sanpabloensis*), California Red-legged Frog (*Rana draytonii*), Tricolored blackbird (*Agelaius tricolor*), Great egret (*Ardea alba*), great blue heron (*Ardea Herodias*), Northern harrier (*Circus cyaneus*), White-tailed kite (*Elanus leucurus*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), California black rail (*Laterallus jamaicensis coturniculus*), San Pablo song sparrow (*Melospiza melodia samuelis*), California clapper rail (*Rallus longirostris obsoletus*), Yellow-headed blackbird (*Xanthocephalus xanthocephalus*), Green sturgeon (*Acipsenser medirostris*), Delta smelt (*Hypomesus transpacificus*), Steelhead (*Oncorhynchus mykiss irideus*), Longfin smelt (*Spirinchus thaleichthys*), Chinook salmon (*Oncorhynchus tshawytscha*), Tidewater goby (*Eucyclogobius newberryi*), Vernal Pool Fairy Shrimp (*Branchinecta lynchi*), and Monarch butterfly (*Danaus plexippus*). While additional special status species are known for the region, lack of habitat, barriers to dispersal, and range limitations contribute to their absence from the project site.

Based on the results of a search of the California Natural Diversity Database records (CNDDDB) (CDFW 2013) for the project site along with a review of the 2009 Biological Evaluation Report for the area, multiple field sites were conducted to determine whether the project site supported special-status wildlife species. The potential for federal-listed species were examined in depth for an informal consultation letter report for the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA), with Concurrence from California Department of Fish and Wildlife (CDFW) under Section 2081 of the California Endangered Species Act (Appendix B). No special status fish or aquatic species were encountered during the site visits. Based on existing culvert flap gate, and the reduced habitat quality in the drainage channel along the southern project site boundary, sensitive fish species are not anticipated to utilize this channel east of Pinole Creek. In addition, during these field visits, uplands, seasonal wetlands, and tidal marsh within the project site were assessed for the potential to support CRLF, CCR and SMHM. The surrounding area for 700 feet in all directions was also evaluated for the potential to support these species to determine whether they were in range of potential construction-related disturbance, or if they could potentially move into the project site from suitable habitat outside the site.

All special-status wildlife species that were evaluated for potential to occur within the project site are discussed in more detail below.

Mammals

Pallid bat (*Antrozous pallidus*); CDFW Species of Special Concern. Pallid bats are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species occurs in a number of habitats ranging from rocky arid

deserts to grasslands, and into higher elevation coniferous forests. They are most abundant in the arid Sonoran life zones below 6,000 feet, but have been found up to 10,000 feet in the Sierra Nevada. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags (e.g., ponderosa pine), inside basal hollows of redwoods and giant sequoias, and within bole cavities in oak trees. They have also been reported roosting in stacks of burlap sacks and stone piles. Pallid bats are primarily insectivorous, feeding on large prey that is taken on the ground, or sometimes in flight. Prey items include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2010).

The species has been documented within one mile of the project site, and potential foraging habitat may be supported with the open nature of the area and the close proximity to water. While foraging may occur, the project site does not support rock outcroppings, large tree hollows, mines or other suitable manmade structures that could support roosting. This species may opportunistically forage or fly over the project site; however, roosting is unlikely to be supported.

Salt marsh harvest mouse (*Reithrodontomys raviventris*); Federal Endangered, State Endangered, CDFW Fully Protected. The salt marsh harvest mouse (SMHM) is endemic to tidal and brackish marshes of the San Francisco Bay Estuary. It was listed as endangered under the ESA in 1970 (35 Fed Reg. 1604) and under CESA in 1971. SMHM is also a CDFW Fully Protected Species. No critical habitat has been proposed or designated for this species.

The project site does not occur within or adjacent to known SMHM habitat. The USFWS (2009, 2010) has excluded the San Pablo Bay shore between Point Pinole and Martinez from their map of the current distribution of SMHM. This stretch of shoreline, which includes Hercules, supports only small, isolated patches of salt or brackish marsh; the remainder of the shoreline in this area is dominated by rip-rap lined Bay shore adjacent to the Amtrak/Union Pacific Railroad line. Historical maps of the region also indicate that only small, isolated patches of marsh present pre-European settlement (SFEI 2001). Currently, the largest patch of salt marsh between Point Pinole and Martinez is the marsh north of the project site, which covers approximately 10 acres and is located approximately two miles from the nearest large expanse of marsh (in Bayview-Montalvin). The minimum acreage thought to sustain a healthy SMHM population is 150 acres (Shellhammer, pers. comm. 2005), well above the amount of available habitat in the vicinity of the project site.

Additionally, the SMHM is critically dependent on suitable vegetative cover, which is lacking between the project site and potential habitat to the east and west, and the 2-mile distance between the project site and the nearest potential habitat is greater than the known dispersal distance for this species (Bias and Morrison 1999). Based on the historical distribution of marsh communities, and the lack of connectivity historically and currently between the project site and suitable marsh habitat, it is unlikely that SMHM occur within the project site or could move into the Hercules area from established population centers.

San Pablo vole (*Microtus californicus sanpabloensis*); CDFW Species of Special Concern. San Pablo vole is a burrowing rodent that is found primarily in the salt marshes of San Pablo Creek and on the south shore of San Pablo Bay. The species also uses grassland habitat in the vicinity of salt marshes. As with most voles, this subspecies feeds on grasses, sedges, and herbs. Its burrow network is often readily apparent, radiating outward from a burrow. The nearby tidal marsh provides a large area of suitable pickleweed habitat for this species. The project site, which was filled long ago, currently provides only marginal habitat in the form of small, fragmented patches of pickleweed amongst upland, ruderal weeds. The site is also separated from nearby suitable habitat areas by dispersal barriers (railroad tracks, Railroad Avenue, and the Bay Trail berm). Higher quality habitat is located north of the project site, across from dispersal barriers, and the project site is unlikely to support the species due to the existing degraded conditions.

Amphibians

California Red-legged Frog (*Rana draytonii*); Federal Threatened. The California red-legged frog (CRLF) was listed as Federally Threatened May 23, 1996 (61 FR 25813-25833) and is a candidate for listing under CESA. Critical Habitat for the CRLF was designated on April 13, 2006 (71 FR 19243-19346), and the revised designation was finalized March 17, 2010 (75 FR 12815-12959). A Recovery Plan for the CRLF was published by the USFWS on May 28, 2002.

The project site is not located within or adjacent to Critical Habitat for California red-legged frog. The nearest documented occurrence of CRLF to the project site is located approximately 1.4 miles to the east. Dense residential development and a major transportation corridor (Highway 4) separate the project site from this documented occurrence (CDFW 2013). The three other occurrences of this species within five miles of the project site are located beyond the dense, urban coastal development to the east and south. There are no documented occurrences within five miles to west or north of the project site.

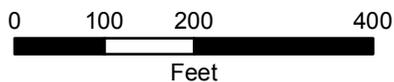
Pinole Creek is tidally influenced where it meets the project site, and based on the proximity of the project site to San Pablo Bay, this portion of the creek is likely too saline throughout most or all of the year to support CRLF. On December 28, 2013, a WRA biologist took salinity readings where the project site meets the creek, and the creek measured 20 parts per thousand (“ppt”), which is beyond the maximum salinity level that adult CRLF can tolerate (nine ppt) (Jennings and Hayes 1990). Salinity levels are likely to decrease during the rainy season, though the proximity of the site to tidal waters in the Bay suggests that the site will maintain unsuitable salinity levels throughout this period as well. Pinole Creek also has steep banks in the vicinity of the project site, and this would make it difficult for CRLF to move from open water into vegetative cover. Overall, Pinole Creek in the vicinity of the western project site is not likely to provide suitable habitat for CRLF, and it is not likely to act as a dispersal corridor between the project site and potentially suitable habitat to the south.

The aquatic habitat with the greatest potential to support CRLF occurs in the off-site freshwater marsh southeast of the project site; which is almost entirely surrounded by the Chelsea-by-the-Bay subdivision (Figure 8).



Figure 8. Potential California Red-Legged Frog Aquatic Habitat

Chelsea Wetlands
Contra Costa County, California



Date: Jan 2014
Map By: DC
Aerial: 2010 Microsoft

Limited areas of open water with substantial floating vegetation were visible through thick willows and cattails, and the feature was inundated during all three site visits prior to the onset of the rainy season, suggesting that it is perennially flooded. The site is fairly isolated, though it appears to connect to other potential aquatic habitat to the east through several culverts. The condition of this feature indicates that it may be suitable for use as aquatic breeding or aquatic non-breeding CRLF habitat.

Because protocol level surveys have not been conducted and therefore absence of the species cannot be definitively established, CRLF are assumed present in the off-site freshwater marsh. A portion of the drainage channel within the southeast corner of the project site, flows out of the freshwater marsh, and would be considered aquatic non-breeding habitat for the species. The drainage channel is relatively narrow (one to three feet with width) and typically less than a foot in depth. Salinity measurements taken within the drainage channel indicated the majority of water within the project site is above nine ppt (reaching 25 ppt in some portions), and therefore unsuitable for CRLF. With this limitation, potential aquatic non-breeding habitat for this species would be restricted to the southeast corner of the project site (Figure 8).

Upland habitat for CRLF is typically within 300 feet of potential suitable aquatic habitat. The eastern portion of the project site supports cattail, pickleweed, saltgrass and associates, as well as palm trees, and limited ruderal vegetation along Santa Fe Avenue. With the exception of the ruderal community, the vegetation in this area is not typical CRLF upland vegetation and is likely dense enough to discourage movement and foraging. CRLF upland habitat surrounding aquatic features is generally most important where aquatic features dry up seasonally and force frogs to seek cover in soil cracks, animal burrows or plant debris. Where suitable perennial water sources occur, as appears to be the case with the drainage channel and off-site freshwater marsh, frogs are not forced to seek dry season refuge; they are more likely to remain in aquatic habitat and less likely to occur in upland refugia surrounding the aquatic feature. Thus, assuming CRLF are present in the freshwater marsh, it would be unlikely that any would occur in upland refugia within the project site.

The project site appears generally isolated from known CRLF occurrences by large expanses of urban development; corridors leading to and from the site are extremely limited. The potential aquatic non-breeding habitat in the project site is also degraded and would provide only poor to marginal quality CRLF habitat. Additionally, if CRLF was present within non-breeding aquatic habitat in the project site or freshwater marsh to the southeast, they would face high rates of mortality due to urban environmental impacts, such as road traffic, domestic and non-native predators, high rates of predation due to lack of suitable cover along dispersal routes, and desiccation if they become trapped, are unable to move beyond a barrier, or simply due to the long travel distance over paved surfaces which lack sufficient moisture. Only extremely limited corridors exist that would allow frogs to move into and out of the freshwater marsh and project site, meaning that this species would likely have to support a self-sustaining population to persist here; high mortality rates would not likely be compensated by inflow from a source population outside the site.

Birds

Tricolored blackbird (*Agelaius tricolor*); CDFW Species of Special Concern, USFWS Bird of Conservation Concern. The tricolored blackbird is common locally in the Central Valley and along coastal California. This species breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. It feeds in grassland and cropland habitats. This species is highly colonial. Though the species has not been documented near the project site, potentially suitable nesting habitat for this species is present within in the freshwater marsh adjacent to the project site. The project site provides only marginal cattail cover which is unlikely to support colonial nesting species. While the project site does not support suitable nesting habitat for the species, potential foraging habitat is supported and the species may occasionally occur within the project site.

Great egret (*Ardea alba*) and great blue heron (*Ardea Herodias*); CDFW Protected Rookery Sites. Both species are considered common yearlong residents in coastal lowlands, inland valleys, and the Central Valley. While individual are not protected, rookeries of these bird species are considered sensitive by CDFW. These bird species have been observed foraging within Pinole Creek and the trees on or near the project site could be used as a rookery. The project area supports foraging habitat for these species and while not supported within the project site, larger trees adjacent to the project site may support nesting for these colonial species.

Burrowing owl (*Athene cunicularia*); CDFW Species of Special Concern; USFWS Bird of Conservation Concern. The burrowing owl typically favors flat, open grassland or gentle slopes and sparse shrub-land ecosystems. These owls prefer annual or perennial grasslands, typically with sparse or nonexistent tree or shrub canopies; however, they also colonize debris piles and old pipes. Burrowing owls exhibit high site fidelity and usually nest in abandoned burrows of ground squirrels or pocket gophers.

No suitable ground squirrel or other small mammal burrows were observed on the project site. Additionally, based on the CNDDB, the species has not been documented nesting within 16 miles of the project site. However, the species has been observed wintering (non-breeding) near the project site by Pacific Biology. Therefore, though nesting on the site is considered unlikely, the species could temporarily occur on the site as a winter migrant and utilize structures such as culverts for shelter.

Northern harrier (*Circus cyaneus*); CDFW Species of Special Concern. Harriers are residents of open wetlands, including marshy meadows; wet, lightly grazed pastures; old fields; freshwater and brackish marshes. They also frequent also dry uplands, including upland prairies, mesic grasslands, drained marshlands, croplands, cold desert shrub-steppe, and riparian woodland throughout California (MacWhirter and Bildstein 1996). Harriers typically nest on ground in open (treeless) habitats in dense, often tall, vegetation. Extremely varied choice of vegetative cover, even within a single area. Soil types include drained and non-drained wetlands as well as uplands. The project site supports potentially suitable nesting and foraging habitat for the species.

White-tailed kite (*Elanus leucurus*); CDFW Fully Protected. Kites occur in low elevation grassland, agricultural, wetland, oak woodland, and savannah habitats. Riparian zones adjacent to open areas are also used. Vegetative structure and prey availability seem to be more important than specific associations with plant species or vegetative communities. Lightly grazed or ungrazed fields generally support large prey populations and are often preferred to other habitats. Kites primarily feed on small mammals, although, birds, reptiles, amphibians, and insects are also taken. Nest trees range from single isolated trees to trees within large contiguous forests. Preferred nest trees are extremely variable, ranging from small shrubs (less than 10 ft. tall), to large trees (greater than 150 ft. tall) (Dunk 1995). The project site supports foraging habitat and trees boarding the project site may support nesting for this species.

San Francisco common yellowthroat (*Geothlypis trichas sinuosa*); CDFW Species of Special Concern, USFWS Bird of Conservation. This subspecies of the common yellowthroat is found in freshwater marshes, coastal swales, riparian thickets, brackish marshes, and saltwater marshes. Their breeding range extends from Tomales Bay in the north, Carquinez Strait to the east, and Santa Cruz County to the south. This species requires thick, continuous cover such as tall grasses, tule patches, or riparian vegetation down to the water surface for foraging and prefers willows for nesting. The project site supports potential breeding habitat for this species.

California black rail (*Laterallus jamaicensis coturniculus*); State Threatened, CDFW Fully Protected, USFWS Bird of Conservation Concern California black rail (CBR), a subspecies of the Black Rail, is resident in California coastal salt and brackish marshes from Bodega Bay to Morro Bay, with additional populations known from inland freshwater marshes (Eddleman et al. 1994). CBR nests from mid-March through mid-July, with peak activity occurring in April and May. Cogswell (1977) found that CBR is typically associated with pickleweed marshes. In the San Francisco Bay Area, CBR uses vegetation that varies from salt marshes dominated by pickleweed, saltgrass, and Pacific cordgrass to brackish marsh assemblages with variable proportions of salt marsh dominants (pickleweed, cordgrass), bulrush and tule (*Schoenoplectus* spp.), and cattail (USFWS 2009). In a study by Manolis (1977), 95 percent of CBR detected were found in marshes dominated by either pickleweed or bulrush, and the majority of birds found in areas dominated by bulrush was in or near parts of the marsh where pickleweed was also present and fairly abundant.

In the site's current condition, it provides suboptimal habitat for this species due to the limited extent of tidal marsh vegetation and lack of tidal channels. The California black rail was documented in the nearby tidal marsh in 2001 (CNDDDB) however, the potential nesting habitat is separated from the site by a row of trees, the San Francisco Bay trail, an unused road, and an actively used railroad right-of-way. The project site supports suboptimal habitat for the species; and is unlikely to support breeding.

San Pablo song sparrow (*Melospiza melodia samuelis*); CDFW Species of Special Concern. San Pablo song sparrows inhabit salt, fresh, and brackish marshes and the moist, brushy, weedy edges of these habitats in the San Pablo Bay. The song sparrow will avoid areas where water is stagnant and/or tidal flow is obstructed (Shuford and Gardali 2008). This

species has been observed displaying nesting behavior near the project site, within the brackish marsh bordering the lower reach of Pinole Creek. Suitable nesting habitat is also present on-site for the species. From a habitat perspective, the enhancement of pickleweed wetland and marsh habitat represents a net benefit to the species.

California clapper rail (*Rallus longirostris obsoletus*); Federal Endangered, State Endangered, CDFW Fully Protected. The California clapper rail (CCR) is the resident clapper rail subspecies of northern and central California. Although formerly more widespread, it is currently restricted to the San Francisco Bay Estuary, with the largest populations occurring in remnant salt marshes of southern San Francisco Bay. It was listed as endangered under the ESA in 1970 (35 Fed. Reg. 16,047 [Oct. 13, 1970]), and also under CESA in 1971. CCR is also a CDFW Fully Protected Species. No critical habitat has been proposed or designated for this subspecies.

The vast majority of the project site provides no suitable habitat for CCR, consisting primarily of uplands with small, isolated wetland patches. Tidal influence is restricted by a tide gate along Pinole Creek that irregularly inundates a very narrow channel directly adjacent to residential development. The small section of marsh vegetation along Pinole Creek at the western end of the project site provides only very poor-quality CCR habitat, as described below.

The USFWS typically assesses potential incidental impacts to CCR (e.g., nest abandonment due to noise) within 700 feet of project activities, and thus an assessment of the potential for CCR occurrence in surrounding areas is warranted. Wetland areas bordering the project site are unlikely to support CCR. The pickleweed-dominated wetland to the north is effectively diked, with tidal influence restricted to a culvert along the creek. Although there are beds of cordgrass along the bay shoreline on the outboard of this wetland area, these beds are hydrologically isolated from the adjacent wetland basin and the two vegetation types do not form a continuous, zoned marsh plain of the type that supports CCR. Lower Pinole Creek provides tidal-influenced wetlands, although they are confined to relatively narrow strips along the creek banks. In the vicinity of the project site (within 700 feet), the marsh plain along the creek appears to be widest directly west of the project site, where it extends for approximately 60 feet; in other areas, the plain varies in extent from approximately 15 to 35 feet. Although cordgrass is present in scattered and limited amounts along portions of the creek, its banks are relatively steep (lacking a gradual slope), and dendritic tidal channels are absent, indicating only very poor-quality habitat that lacks most typical characteristics and is very unlikely to support breeding.

Available information about the current distribution of CCR along the southern portion of San Pablo Bay also suggests that it is unlikely to occur near the project site. A current distribution map by the USFWS (2013) shows no occurrences along southern San Pablo Bay east of Point Pinole, approximately 2.2 miles west of the project site. This distribution pattern is also shown by an examination of documented CCR occurrences in CDFW's Natural Diversity Database (CDFW 2013). East of Point Pinole, tidal wetlands along San Pablo Bay east of Point Pinole currently occur only in very small, scattered fragments that are likely too small in area, marginal in quality, and distant from occupied areas to support CCR, most especially for breeding.

Yellow-headed blackbird (*Xanthocephalus xanthocephalus*); CDFW Species of Special Concern. Yellow-headed blackbird nest colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, and nesting is timed with maximum emergence of aquatic insects. Potential suitable nesting habitat for this species is present within in the freshwater marsh adjacent to the project site. The project site provides only marginal cattail cover which is unlikely to support colonial nesting species. While the project site does not support suitable nesting habitat for the species, potential foraging habitat is supported.

Fish

Within the project site, a drainage channel located east of Pinole Creek is controlled by a flap gate which likely prevents fish from accessing the channel within the project site. Because of the barrier, and the altered habitat state found upstream of the flap gate, no special-status fish occur within the project site east of Pinole Creek.

Green sturgeon (*Acipenser medirostris*); Federal Threatened, National Marine Fisheries Service (NMFS), CDFW Species of Special Concern. Green Sturgeon adults, subadults, and juveniles are widely distributed throughout the Delta and estuary. Adults typically migrate upstream on the western edge of the Delta, returning to the ocean when river temperatures decrease and flows increase during the fall and early winter. They may hold in low gradient or off-channel sloughs or coves where temperatures are within acceptable thresholds. Larvae prefer open aquatic habitats for foraging, but utilize structural habitat during the day. Juvenile rearing habitats for Green Sturgeon include spawning areas and migration corridors. Rearing habitat utilization varies dependent on seasonal flows and temperatures. Juvenile Green Sturgeon is found year-round in the Delta and uses the region as a migration corridor, feeding area, and juvenile rearing area. Juvenile Green Sturgeon are strong swimmers and thus, have the ability to select or avoid habitats.

Because the downstream portion of the project site is subject to tidal influence, there is a potential for juvenile sturgeon to enter the lower portion of Pinole Creek to forage. Unfortunately, not enough is known about juvenile green sturgeon movement or distribution to determine with more certainty if the species would utilize the tidally connected portion of the project site. Pinole Creek does not support adult green sturgeon spawning or foraging. The existing culvert flap gate restricts access to the project site east of Pinole Creek. As a result, juvenile green sturgeon do not occur east of the flap gate, and are only anticipated to infrequently occur within the tidally influenced portion of Pinole Creek. The tidally influenced portion of Pinole Creek, as defined by the elevation of mean higher high water, is included in critical habitat for green sturgeon. Tidally influenced portions of the project site are thereby included in green sturgeon critical habitat.

Delta smelt (*Hypomesus transpacificus*); Federal Endangered, State Threatened. Delta Smelt are a pelagic (live in the open water column away from the bottom) and euryhaline species (tolerant of a wide salinity range) found in brackish water. They are found only in the Sacramento-San Joaquin Estuary and as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River. They extend downstream as far

as San Pablo Bay. During the late winter to early summer, delta smelt migrate to freshwater to spawn. Larvae hatch between 10-14 days, are planktonic (float with the water currents), and are washed downstream until they reach areas near the entrapment zone where salt and fresh water mix. Delta smelt are fast growing and shortlived with the majority of growth within the first seven to nine months of life. Most smelt die after spawning in the early spring although a few survive to a second year. Delta smelt feed entirely on small crustaceans (zooplankton).

Delta smelt may occur seasonally in San Pablo Bay; however, have not been documented to occur within Pinole Creek and are not anticipated to be supported by the project site habitat (Leidy 2007). The project site does not support habitat for this species, and the adjacent waters of Pinole Creek are unlikely to support the species as well.

Steelhead (*Oncorhynchus mykiss irideus*) – Central California Coast ESU; Federal Threatened, NMFS. The only federally listed species of fish known to currently occur in Pinole Creek is steelhead (HES 2009, Leidy 2007). Pinole Creek is not designated Critical Habitat for the species; however, steelhead has been documented using available aquatic habitat in tidally influenced portion of Pinole Creek (HES 2009). Habitat within the Pinole Creek portion of project site is capable of providing a migration corridor for steelhead, along with seasonal rearing habitat. Steelhead are documented to occur within Pinole Creek; however, an existing fish passage barrier approximately 1.5 miles upstream of San Pablo Bay prevents returning adults from reaching more suitable spawning habitat (HES 2009). Because of this, steelhead are anticipated to only infrequently occur within the Action Area, and in relatively low numbers. For the project site east of Pinole Creek, steelhead are not supported within the existing habitat. A culvert flap gate restricts access and degrades the habitat quality within the existing channel, which is limited to a narrow, shallow channel. Spawning habitat is not supported in any portion of the project site or immediate vicinity. Steelhead do not occur east of the flap gate, and are only anticipated to infrequently occur within the tidally influenced portion of Pinole Creek. The project site does not contain critical habitat for this species.

Longfin smelt (*Spirinchus thaleichthys*); Federal Candidate, State Threatened, CDFW Species of Special Concern. Longfin Smelt is a pelagic, estuarine fish that ranges from Monterey Bay northward to Hinchinbrook Island, Prince William Sound Alaska. As this species matures in the fall, adults found throughout the San Francisco Bay, migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning is believed to take place in freshwater. In April and May, juveniles are believed to migrate downstream to San Pablo Bay. Juveniles tend to inhabit the middle and lower portions of the water column. This species tends to be abundant near freshwater outflow, where higher-quality nursery habitat occurs and potential feeding opportunities are greater.

Longfin smelt are not documented to occur within Pinole Creek; however, the tidal portion of Pinole Creek may seasonally support longfin smelt (Leidy 2007). While adults can be found throughout San Francisco Bay, this species is not strongly associated with any structural habitat, and relies on greater depths with slower velocities than are typically present in tidally influenced portions of the project site. Because of this, longfin smelt are anticipated to only

infrequently occur within the tidally influenced portion of Pinole Creek. For the project site east of Pinole Creek, longfin are not supported within the existing habitat. A culvert flap gate restricts access and degrades the habitat quality within the existing channel, which is limited to a narrow, shallow channel. Spawning habitat is not supported within the project site. Longfin smelt do not occur east of the flap gate, and are only anticipated to infrequently occur within the tidally influenced portion of Pinole Creek. Critical habitat has not been designated for this species.

Chinook salmon (*Oncorhynchus tshawytscha*). There are three ESU's of Chinook salmon that are listed on state and federal Endangered Species Lists that occur within the San Francisco Bay region. The California Coastal ESU and Spring-run ESU are Federal- and State-Threatened species. The Winter-run ESU is a Federal-and State-Endangered species. In addition to these three, a fourth Chinook salmon ESU, the Central Valley Fall/late fall-run ESU is a NMFS and CDFW species of special concern.

Chinook salmon are anadromous species, and while the time spent in freshwater and the specific spawning areas used will vary for each ESU, generally large rivers and their tributaries with cool clean water and suitable sized gravels or small cobble substrate are required for spawning to occur. The California Coastal ESU typically utilizes coastal rivers and streams that drain directly to the ocean. The other three Chinook salmon ESUs listed above utilize the Sacramento – San Joaquin River system, or large tributaries to the San Francisco Bay.

Chinook salmon have been observed in many of the tributaries to San Francisco Bay although many if not all of these sightings may be strays of hatchery origin (HES 2009). Chinook salmon have not been reported in lower Pinole Creek. For the project site east of Pinole Creek, Chinook salmon are not supported within the existing habitat. A culvert flap gate restricts access and degrades the habitat quality within the existing channel, which is limited to a narrow, shallow channel. Spawning habitat is not supported in any portion of the project or immediate vicinity. Chinook salmon do not occur east of the flap gate, and are not anticipated to occur within the tidally influenced portion of Pinole Creek. The project site does not contain critical habitat for this species.

Tidewater goby (*Eucyclogobius newberry*); Federal Endangered Species, CDFW Species of Special Concern. The tidewater goby is restricted to coastal, brackish-water habitats in California and is found primarily in discrete lagoons, estuaries or stream mouths. Water depth and velocity are strong indicators of a habitat's capacity to support this species (Chamberlain 2006). Tidewater Goby is generally found in waters less than one meter in depth, and within areas of little to no current. Unique among fishes of the Pacific coast, this primarily annual species prefers waters with low salinity in coastal estuaries, but can tolerate periods of high salinity. They feed along the bottom, preferring clean, shallow, slow-moving waters. They can tolerate a wide range of abiotic conditions. This species is considered extirpated from San Francisco Bay, and therefore does not have the potential to occur within the project site.

Invertebrates

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*), Federal Threatened Species. The vernal pool fairy shrimp is widespread but not abundant; populations are known from Stillwater Plain in

Shasta County through most of the length of the Central Valley to Pixley in Tulare County (additional disjunct populations exist at various locations throughout state). Vernal pool fairy shrimp occupy a variety of different vernal pool habitats, from small, clear sandstone rock pools to large, turbid, alkaline, grassland valley floor pools (USFWS 2003).

Based on a review of the CNDDDB, the closest documented occurrence of a federally-listed fairy shrimp species is approximately 12 miles north of the project site, where vernal pool fairy shrimp have been documented. However, as surveys for federally-listed fairy shrimp species have been required by the USFWS for projects within the City of Hercules, a discussion of the potential on-site occurrence of federally-listed shrimp species is provided below.

Potential habitat for federally-listed fairy shrimp on the project site is limited to the single ephemeral pool located within the grassland at the base of the Bay Trail Berm along the northern site boundary. This area contains a small area of standing freshwater (approximately 4-5 inches in depth) for short periods and, based on a well-developed invertebrate population (e.g., daphnia, beetles) and the presence of pacific tree frog egg masses, standing water persists for sufficient duration to support fairy shrimp. However, the occurrence of federally-listed shrimp species within the pool is considered unlikely for the following reasons:

- The project site was historically a tidal marsh and did not contain suitable fairy shrimp habitat. Fill has been deposited on the site and the single freshwater seasonal pool occurs on these fill soils. Therefore, the seasonal pool is not a natural feature and vernal pool fairy shrimp cysts would need to be introduced to the pool from a location greater than 12 miles from the site.
- Federally-listed fairy shrimp are not known from the project area. The closest documented occurrence of a federally-listed shrimp species is approximately 12 miles north of the project site. Additionally, no federally-listed fairy shrimp were identified in the project area during protocol wet season surveys in 2003-2004 by Condor Country Consulting and 2006-2007 by Vollmar Consulting, which were conducted approximately 0.7 mile north of the project site within the railroad right-of-way.

Monarch butterfly (*Danaus plexippus*). CDFW Special Status Invertebrate. This large, showy butterfly is found throughout the United States, southern Canada, and Central America. It also occurs in parts of South America and other continents. In North America, this species spends spring and summer months breeding and foraging across much of its range. Monarch butterfly generally uses milkweed (*Asclepias spp.*) for both breeding and nectaring, although nectar may also be obtained from a variety of additional plant species. From August to October, monarchs will migrate thousands of miles to winter roost sites located along the California Coast and central Mexico. At roost sites, monarchs will congregate in thousands or millions on a tree or group of trees (Opler et al. 2011). Winter roost sites are located in wind-protected tree groves, with nectar and water sources nearby. Larger wind-protected tree groves along the margins of the site and immediately adjacent to the Study Area have the potential to support roosting habitat for this species. This species may occasionally fly through the project site, and trees bordering the project site may provide seasonal roost habitat for the species.

Summary

Based on the analysis provided above, the following 13 special status species have the potential to be supported by available habitat and occur within or immediately adjacent to the project site: California red-legged frog, tricolored blackbird, burrowing owl, northern harrier, white-tailed kite, egret and heron rookery, San Francisco common yellowthroat, San Pablo song sparrow, yellow-headed blackbird, green sturgeon, steelhead, longfin smelt and monarch butterfly. Special status species determined not to occur within the project site, or be affected by project activities, were determined not be impacted and no mitigation was required. For the 13 special status species potentially occurring within the project site, a discussion of potential project related impacts, along with mitigation measures to reduce potential impacts to less than significant levels, are presented below.

Discussion of Impacts

- a) ***Would the proposed project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service***

Less than Significant with Mitigation Incorporated.

California Red-legged Frog

Potential impact areas for CRLF are limited to individuals in the eastern portion of the drainage channel and associated uplands, particularly near the southeastern area adjacent to the freshwater marsh. It is unlikely that CRLF would be present in underground refugia in the project site's uplands, and thus no impacts to refuging CRLF are anticipated.

Project activities which may directly affect this species include vegetation clearing and grading. While the modification of habitat is not anticipated to significantly affect CRLF, any direct impact to CRLF utilizing the aquatic non-breeding habitat in the project site would be considered a significant impact. Work in the drainage channel downstream of the freshwater wetland is not anticipated to affect water quality for frogs in the wetland. Construction activity within the western portion of the project site is not anticipated to impact CRLF or CRLF habitat. After the proposed project is completed, movement corridors to and from the site would still be present, and the uplands surrounding the freshwater marsh would be more likely to support CRLF foraging and dispersal than under existing conditions. Any potential direct effects to this species would be a potentially significant impact.

Mitigation Measure BIO-1a

- All project personnel would receive an environmental training from a qualified biologist (approved by the USFWS) prior to the initiation of any on-site construction work. At a minimum, the training shall cover: 1) the natural history, identification and distribution of the California red-legged frog (CRLF); 2) the legal protections of this species and the ramifications for take; 3) circumstances under which this species

may be encountered in the course of project work; and, 4) avoidance and conservation measures to ensure that no take of this species occurs.

- All grading activity within suitable aquatic and associated upland and dispersal habitat for CRLF shall be conducted prior to the onset of the rainy season or during the dry season (May 1 through October 31), unless exclusion fencing is utilized. If grading and earth work would occur during the rainy season (November 1 through April 30), temporary exclusion fencing shall be placed between the project site and the freshwater marsh to the east to prevent CRLF from moving through the project site during construction. The exclusion fence (if used) shall consist of silt fencing (or similar material) and shall be buried to a minimum depth of two inches so that frogs cannot crawl under the fence. Fence height shall be at least one foot higher than the highest adjacent vegetation, with a minimum height of three feet. All supports for the exclusion fencing shall be placed on the inside of the work area. The fencing shall be immediately removed upon project completion.
- A qualified biologist shall be present on-site during exclusion fence installation and removal, and shall conduct a pre-construction survey immediately prior to the initiation of vegetation removal and ground disturbance activities. The biologist shall document compliance with the project permit conditions and all take avoidance and minimization measures. The biologist shall also train a designated on-site monitor to ensure compliance with all permit conditions throughout the remainder of restoration work.
- If a CRLF enters or is found within the work area(s), the biologist or on-site monitor shall suspend all construction activities in the immediate construction zone that may result in harassment or other forms of take. The animal shall be closely monitored and allowed to leave the work area voluntarily.
- Prior to the start of daily construction activities, the biologist or on-site monitor shall inspect the exclusion fencing to ensure that it is functional (e.g., has no rips or tears, and remains buried in the ground). The fenced area(s) shall also be inspected to ensure that no frogs are trapped there. Any CRLF that are found along and outside the fence shall be closely monitored until they move away from the construction area.
- No plastic monofilament netting (erosion control wattles or matting) shall be used within 300 feet of potentially suitable aquatic habitat for CRLF.
- USFWS shall be notified within one working day of the discovery of the death or injury of a listed species.

Implementation of the above measures would mitigate impacts to CRLF to a less-than-significant level.

Special-Status Birds Species

Suitable nesting habitat may be present on and adjacent to the project site for special-

status birds identified above including tricolored blackbird, northern harrier, white-tailed kite, egret and heron rookery, San Francisco common yellowthroat, San Pablo song sparrow, and yellow-headed blackbird. Additionally, burrowing owl could temporarily occur on the site as a winter migrant and utilize structures such as culverts for shelter. Removal or disturbance of existing vegetation could result in the direct take of these species and/or the direct removal or destruction of active bird nests. Activities that result in the direct removal of active nests or disturbance to nesting birds sufficient to result in the abandonment of active nests would be considered a significant impact under the CEQA and a violation of the Migratory Bird Treaty Act and the California Fish and Game Code.

Mitigation Measure BIO-1b

The implementation of the following avoidance and minimization measures would help to reduce the potential for impacts to special-status birds, breeding birds, and habitat for both:

- To the extent feasible, all ground disturbance and vegetation removal shall be conducted between September 1 and January 30, outside of the breeding season for most bird species expected to occur at the site.
- If ground disturbance or removal of vegetation commences between February 1 and August 31, pre-construction breeding bird surveys shall be performed within 14 days prior to the onset of such activities to determine the presence and location of nesting bird species. If active nests are present, temporary protective buffers shall be placed around the nest site and work shall not occur within these areas. The appropriate buffer distance is dependent on the species, the surrounding vegetation, and the topography and shall be determined by a qualified biologist as appropriate to prevent nest abandonment and direct mortality during project activities.
- A pre-construction burrowing owl survey shall be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012) guidelines to determine the status of this species in the project site. If the species is determined to be present, CDFW shall be consulted to determine appropriate minimization and avoidance measures.

Implementation of the above measures would mitigate impacts to nesting birds to a less-than-significant level.

Green Sturgeon, Steelhead, Longfin Smelt, and EFH

Green sturgeon, steelhead, and longfin smelt have the potential to occur in Pinole Creek near the confluence with San Pablo Bay. The tidally influenced portion of Pinole Creek falls within Critical Habitat for green sturgeon. The project would involve work along the eastern bank of lower Pinole Creek and in the drainage channel which runs along the southern project site boundary. The existing flap gate prevents special status fish in Pinole Creek from accessing the drainage channel in the project site.

Potential direct effects to steelhead, green sturgeon, and longfin smelt include injury or mortality of individuals due to construction activities if construction occurs within wetted areas of Pinole Creek. Specifically, if it is necessary to excavate the new tidal channel in Pinole Creek or backfill the existing culvert while standing water is present, these activities could result in trapping or burying juvenile listed fish. Adult fish are anticipated to be more mobile and less likely to utilize the shallow waters west of the flap gate.

Excavating substrate from the channel has the potential to mobilize sediment and temporarily increase turbidity levels resulting in temporary indirect effects to suitable downstream fish rearing habitat of Pinole Creek and its confluence with San Pablo Bay. Substrate removal can also result in the mortality of fish that are not protected by the ESA or CESA, but can serve as prey species for special-status fish such as steelhead that may utilize downstream habitat. The majority of earth work and disturbance would occur east of the existing channel bank along Pinole Creek and east of the flap gate, within habitat currently not accessible to listed fish. Impacts from turbidity are anticipated to be temporary, and only during periods of construction activity. Pinole Creek is designated critical habitat for green sturgeon and project activity could result in trapping or killing listed fish; therefore, the proposed project activities could have a potentially significant impact.

Mitigation Measure BIO-1c

The following avoidance and minimization measures are intended to prevent take of steelhead, green sturgeon, and longfin smelt which may occur within the project site vicinity. The incorporation of these measures would also reduce the extent of temporary effect to Critical Habitat and EFH. No permanent loss of habitat or habitat function is anticipated as the project would be wholly beneficial. Existing diked uplands would be restored to fully tidal marsh habitat, resulting in a substantial increase in available habitat for marsh-associated species in the area. With the implementation of the proposed Project, barriers between Pinole Creek and the project site would be removed and a tidal channel would be constructed on the project site, resulting in a substantial increase in the quality and quantity of aquatic and marsh habitat for native fish and other species.

- Work shall be conducted in isolation from flowing or tidal water. Prior to the start of culvert replacement or channel disturbance activities, the project site shall be isolated by sheet piling, and flowing water shall be diverted around the isolated area.
- Sheet pile installation shall begin during a zero tide or lower when Pinole Creek downstream of the existing culvert or proposed new connector location have only a minimal amount of water.
- If work is to be conducted within standing or flowing water, a qualified fisheries biologist shall be on-site during sheet pile installation to ensure no listed fish are trapped in the tidal slough. If a listed fish species is observed within the tidal slough during this inspection, sheet pile installation shall cease for one full tidal cycle to allow the fish to leave of its own accord.

- The appropriate Corps, CDFW, and Regional Water Quality Control Board (RWQCB) permits shall be obtained to conduct culvert replacement within the project site. Additional avoidance and minimization measures recommended in these permits shall be followed to reduce the potential to affect downstream fish habitat.

Implementation of the above measure would mitigate impacts to steelhead, green sturgeon, and longfin smelt to a less-than-significant level.

Monarch Butterfly Roost Site

Although not protected by ESA or CESA, monarch roosts are designated by CDFW as a species with an S3 ranking for wintering sites, which means during the monarch's winter roosting and clustering period their habitat is protected. Potential impacts to large trees or ground disturbance in the vicinity of these trees may impact groups of overwintering monarch butterflies. This species is not known to be sensitive to noise disturbance, but individuals may become agitated with excessive dust and/or human traffic (Sakai 2002). Additionally, their habitat requirements include specific microclimates in the tree canopy, the understory vegetation, and the aspect of the trees (southern exposure is preferred). Removal of trees in a grove, particularly south-facing trees, and removal of understory vegetation may affect this species, as would excessive construction-related dust and human or vehicular traffic around roost sites.

Mitigation Measure BIO-1d

To avoid impacts to monarch roosts, the following avoidance and minimization measures are recommended:

- Construction activities which involve excessive human or vehicular traffic or excessive dust shall be conducted, when feasible, in the months when butterflies are generally not present (March 1 through September 30).
- For construction activities which would occur during the period when monarchs are most likely to be wintering in the area (October 1 through February 28), a qualified biologist shall conduct pre-construction surveys for roosting monarchs.
- If a monarch roost is observed, construction fencing shall be erected around the roost tree and associated understory, and no construction shall occur within the fenced area until the monarchs have migrated out of the project site.

Implementation of the above measure would mitigate impacts to Monarch butterfly roosts to a less-than-significant level.

- b, c) Would the proposed project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; or have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

Less than Significant Impact with Mitigation Incorporated.

Sensitive Habitat

As described above, the project site contains approximately 1.97 acres of wetlands (tidal and freshwater wetland) and open water. The sensitive natural communities are associated with the sites wetlands and waters and include pickleweed wetland (0.88 acre), salt-alkali marsh (0.23 acre), brackish bulrush-cattail wetland (0.08 acre), coastal brackish marsh (0.14 acre), freshwater seasonal wetland (0.44 acre), and brackish/salt marsh drainage channel (0.20 acre). Temporary impacts to sensitive natural communities are summarized in Table 5.

Temporary impacts to wetlands and waters summarized in Table 6 occur within the project site and are subject to jurisdiction of the USACE as “Waters of the U.S.” and to the San Francisco Bay RWQCB as “Waters of the State”. The project will result in a net gain of the sensitive natural communities and impacts will be temporary during construction.

As part of the proposed project, tidal marsh restoration would include excavation of fill previously deposited on the site, grading the site to the appropriate elevations to establish tidal marsh, and realigning the existing on-site drainage channel to meander and connect to Pinole Creek through an improved culvert array near the southeast corner of the project (Figure 4a). Within the project site, wetlands (tidal and freshwater) (approximately 1.48 acres) and waters (approximately 0.15 acre) would be temporarily impacted from the excavation and grading to restore and enhance tidal wetland areas and the realignment of the on-site channel (Figure 5b).

Table 5. Summary of Project Habitat Impacts to Sensitive Natural Communities

Habitat Type	Temporary Impacts (acres)
Pickleweed Wetland	0.67
Salt-Alkali Marsh	0.23
Brackish Bulrush-Cattail Wetland	0.08
Freshwater Seasonal Wetland	0.44
Coastal Brackish Marsh	0.06
Brackish/Salt Marsh Drainage Channel	0.15
Total	1.63 ¹

¹The sum of individual habitat types varies from the total due to rounding error.

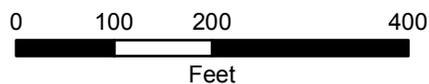
Table 6. Summary of Project Impacts to Wetlands and Waters of the U.S.

Habitat Type	Temporary Impacts (acres)
Wetlands	1.48
Waters	0.15
Total	1.63



Figure 9. Jurisdictional Wetland and Waters Features

Chelsea Wetlands
Contra Costa County, California



Date: January 2014
Map By: Michael Rochelle
Aerial: 2010 Microsoft

Mitigation Measure BIO-2

While temporary impacts to wetlands and waters are unavoidable within the project site due to the nature and purpose of the project's restoration work, the resulting project will result in a net gain of wetland and waters. The following avoidance and minimization measures shall be implemented to reduce impacts to wetlands and waters beyond the scope of the project work:

To minimize impacts to jurisdictional wetlands and waters, sensitive biological communities, and special-status species, the following general avoidance and minimization measures are proposed, many of which will be addressed by the Storm Water Pollution Prevention Plan (SWPPP) required by Mitigation Measure HYDRO-1b. Additional measures are listed to follow which specifically address avoidance of impacts to aquatic and terrestrial species.

1. To reduce impacts to wetlands and waters beyond the scope of the project work, best management practices shall be implemented to control erosion and sedimentation during excavation and grading, where run-off has the potential to impact Pinole Creek. Best management practices recommended by the City of Hercules' include Caltrans Stormwater Quality Manuals, which shall be implemented to minimize pollutants carried from the project site in runoff.
2. The work area shall be delineated where necessary with orange construction fencing in order to minimize impacts to habitat beyond the work limit.
3. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete construction.
4. Where areas of bare soils are exposed during the rainy season, sediment and erosion control measures shall be used to prevent sediment from entering waters in the Pinole Creek. Sediment and erosion control structures shall be monitored and repaired or replaced as needed. Build-up of soil behind silt fences shall be removed promptly and any breaches or undermined areas repaired promptly. Revegetation of disturbed surfaces shall occur prior to the start of the first rainy season after construction.
5. All staging, maintenance, and storage of construction equipment shall be performed in a manner to preclude any direct or indirect discharge of fuel, oil, or other petroleum products into the channel or wetlands within the project site. No other debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete or washings thereof, or other construction-related materials or wastes shall be allowed to enter into or be placed where they may be washed by rainfall or runoff into the channel or wetlands within the project site. All such debris and waste shall be picked-up daily and properly disposed of at an appropriate site.

6. Implementation of the following best management practices shall minimize construction-related water quality impacts

a. Stockpiles of soil or other materials that can be blown by wind shall be covered.

d) ***Would the proposed project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?***

No Impact. Wildlife movement corridors are described as pathways or habitat linkages that connect discrete areas of natural open space otherwise separated or fragmented by topography, changes in vegetation, and other natural or human induced factors such as urbanization. The project site is bordered by, or in proximity to, development to the east, south, and west. The proposed project would increase habitat linkage through improving aquatic movement between Pinole Creek and the on-site drainage channel and therefore would not have any adverse impacts to wildlife movement or wildlife corridors.

e) ***Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

Less than Significant with Mitigation Incorporated. The City of Hercules defines a “mature tree” as any tree with a Diameter at Breast Height (DBH) larger than 12 inches. The removal of any mature trees in conjunction with a development project requires the creation of a Tree Replacement Plan that must be reviewed and accepted by the City.

The project work would require the removal of approximately 36 existing ornamental trees along the berm which qualify as mature trees and would be required to meet these conditions.

Mitigation Measure BIO-3

A qualified botanist shall determine the number of mature and non-mature trees to be removed and an appropriate Tree Replacement Plan shall be developed. The Plan shall incorporate the replacement of all mature trees into the restoration design at a minimum 1:1 ratio. The trees shall be replaced with native varieties planted along the upland margins of the restoration area.

f) ***Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?***

No Impact. The project site is not within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the proposed project would not conflict with such a plan and this issue is not discussed further in this report.

5.5 Cultural Resources

V. CULTURAL RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11

Environmental Setting

The project site was historically tidal marsh but was filled in the early 1900s to support development. Tom Origer & Associates (Origer) conducted a Cultural Resources Study of the project site in October 2013. A copy of the study is included in Appendix C, and its findings are summarized below.

Archival research conducted by Origer included examination of library and project files. A review (NWIC File No. 13-0418) was completed of the archaeological site base maps and records, survey reports, and other materials on file at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park. Sources of information included but were not limited to the current listings of properties on the National Register of Historic Places (National Register), California Historical Landmarks, California Register of Historical Resources (California Register), and California Points of Historical Interest as listed in the Office of Historic Preservation's Historic Property Directory (OHP 2012).

The Office of Historic Preservation has determined that structures older than 45 years should be considered potentially important historical resources, and former building and structure locations could be potentially important historic archaeological sites. Archival research included an examination of historical maps to gain insight into the nature and extent of historical development in the general vicinity, and especially within the study area. Maps ranged from hand-drawn maps of the 1800s (e.g., GLO plats) to topographic maps issued by the United States Geological Survey (USGS) and the USACE from the early to the middle 20th century.

In addition, ethnographic literature that describes appropriate Native American groups, county histories, and other primary and secondary sources were reviewed.

Archival research found that the entire study area had been previously surveyed in 1978 and a large portion of it had been surveyed again in 1985 (Origer, 2013). Three studies were conducted adjacent to the current study area. Seven other studies were conducted within a quarter-mile of the current study area. In its document review, Origer found four recorded cultural resources within a half-mile radius of the study area, but no evidence of ethnographic villages noted near the study area (Origer, 2013).

Historical maps show three buildings within the study area in 1914, five buildings in 1949, three in 1951, and one in 1980 (GLO 1865; USGS 1902, 1914, 1947, 1949, 1951, 1959, 1980). The northwest corner of the project site consistently had at least one building present; however, it was not the same building the entire time. There are currently no structures on the project site.

Based on the distribution of known cultural resources and their environmental settings, there was a small possibility that prehistoric archaeological sites could be found within the study area. Prehistoric archaeological site indicators expected to be found in the region include but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements such as slabs and handstones, and mortars and pestles; bedrock outcrops and boulders with mortar cups; and locally darkened midden soils containing some of the previously listed items plus fragments of bone, shellfish, and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

Two building foundations were found within the study area. One is a small concrete perimeter foundation, partially covered by the berm of the Bay Trail in the western portion of the study area, and the other is a thin concrete slab in the southeast portion of the study area. Neither of these foundations constitute archaeological sites.

No archaeological sites or built environment resources were found within the study area. No prehistoric or historic-era archaeological sites were found within the study area, and no resource-specific recommendations are warranted.

Discussion of Impacts

a) Would the project cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?

No Impact. Pursuant to State CEQA guideline 15064.5, record searches, field surveys, and research were conducted to determine the potential presence of historic resources by Origer. The project site does not contain any resource listed in, or determined to be eligible by, the State Historical Resource Commission and does not contain a resource included in a local register of historic resources or identified as significant in a historical resource survey. Additionally, the project site does not contain any object, building, structure, site, area, place, record, or manuscript that a lead agency determined to be

historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Therefore, no impact would occur.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant with Mitigation Incorporated. No evidence of prehistoric or historic archaeological sites has been identified by Origer for the project site. The cultural resources study conducted at the site did not identify any archaeological resources through archival research or field survey. However, construction could result in encountering unanticipated archaeological resources, as prehistoric sites have been identified in the City near the project site. Therefore, there is a possibility of unanticipated and accidental archaeological discoveries during ground-disturbing project-related activities. Unanticipated and accidental archaeological discoveries during project implementation have the potential to affect significant archaeological resources.

Mitigation Measure CULT-1

During construction, if buried cultural resources are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City of Hercules and other appropriate agencies.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporated. There are no known paleontological resources or geologic features on site. The project site consists entirely of lowland fluvial deposits and artificial fill. Such materials are considered to have a very low likelihood of containing significant geologic or paleontological features. Regardless, construction activities at the proposed project could result in adverse impacts to undiscovered paleontological resources. Construction excavation could expose and have an adverse impact on undiscovered paleontological resources. Following construction, operation of new would not require actions that could expose paleontological resources and would not result in an impact to any such resources. This impact would be reduced to a less-than-significant level with implementation of the following mitigation measure.

Mitigation Measure CULT-2

If buried paleontological resources are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City of Hercules and other appropriate agencies.

d) ***Disturb any human remains, including those interred outside of formal cemeteries?***

Less than Significant with Mitigation Incorporated. As part of the Cultural Resources Study, Origer contacted by letter on September 24, 2013, the State of California Native American Heritage Commission (NAHC) to confirm the presence or absence of sacred lands on or near the project site, and to obtain a list of tribal contacts that may historic information for the project site. The NAHC responded that a records search of the sacred land file indicated no resources within the project site study area. However, NAHC also states that absence of information does not necessarily mean an absence of cultural resources, and that additional sources with knowledge of cultural resources on the project site be contacted. Origer also contacted by letter on September 24, 2013 and October 18, 2013 the following Native American tribal representatives: Trina Marine Ruano Family, The Ohlone Indian Tribe, the Amah/Mutsun Tribal Band, the Indian Canyon Mutsun Band of Costanoan, the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Jakki Kehl, Linda Yamane, and Katherine Erolinda Perez. To date, no responses have been received by the tribal contacts.

Although findings indicate that no cultural resources are located within the project site, earthmoving activities associated with the proposed project could encounter previously unknown burials associated with the villages historically located in the area. Disturbance of these remains would result in a significant impact to human remains interred outside of formal cemeteries. Implementation of Mitigation Measure CULT-3 would reduce impacts to a less than-significant level.

Mitigation Measure CULT-3

In the event of the discovery of human remains, the County Coroner shall be immediately notified. If human remains of Native American origin are discovered during ground-disturbing activities, it is necessary to comply with state laws relating to the disposition of Native American burials that fall within the jurisdiction of the California Native American Heritage Commission (Public Resources Code Section 5097). According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California Native American Heritage Commission to determine the most likely living descendant(s). Disposition of the remains shall be overseen by the most likely living descendants to determine the most appropriate means of treating the human remains and any associated grave artifacts.

5.6 Geology and Soils

VI. GEOLOGY AND SOILS — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					2,14
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,14
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,14
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,14
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2,14
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2,8,14
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,8,14
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2,8,14
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2,8,14

Environmental Setting

Regional geology in the City of Hercules consists of alluvial (stream-related) deposits of Quaternary age (less than two million years old) on the floor of the Refugio Valley, surrounded by marine sedimentary rocks of Miocene age (between five and 23 million years old) in the adjacent uplands. The bedrock units exposed on the hills above the valley floor consist of

Rodeo Shale and Hambre Sandstone to the south, and Briones Sandstone and Cierbo Sandstone to the north. In many places, the bedrock is overlain by colluvium (loose soil and rock fragments that have moved downslope).

Alluvium in the Refugio Valley varies from about 12 feet in thickness in the southeast portion of the valley to about 80 feet in thickness near the valley floor. Near San Pablo Bay, a few feet of fine-grained flood plain alluvium cap weak and highly compressible bay mud deposits. The bay mud has an estimated thickness of 35 to 40 feet along the western edge of the valley, thinning out in an up valley direction. Much of the older valley floor deposits are covered by loose, artificial fill. Fill materials were placed during operation of the Hercules Powder Company, and consist of soils and bedrock excavated from adjacent hillside areas; in some places the fill includes rubble consisting of bricks, asphalt, concrete, glass, and wood.

Most of Hercules lies within the lower portion of the Refugio Valley, adjacent to San Pablo Bay. The valley floor is fairly level. Most slopes on the uplands surrounding the valley floor are fairly gentle (less than 15 percent), although some slopes are between 15 and 30 percent, and exceed 30 percent in very limited areas. Landslides and soil creep have occurred in the past in the steeper portions of areas with unstable soils.

The project site is located in the Coast Ranges geomorphic province of California, a region characterized by a series of parallel, northwesterly trending, folded, and faulted mountain ranges and valleys. The site geology is primarily undivided Quaternary deposits. The USDA soil survey of Contra Costa County indicates that the site is underlain entirely by Clear Lake Clay (bay mud) a substrate highly suitable for wetland creation.

Seismicity

The Hercules area, as part of the San Francisco Bay Area, is in one of the most seismically active regions in the United States. The study area could be affected by ground shaking due to movement along any one of a number of active faults in the region. The San Andreas Fault lies about 21 miles to the southwest of the City, the Hayward Fault lies about two and a half miles southwest of the city, and the Concord-Green Valley Fault lies about 11 miles to the east. The Calaveras Fault lies approximately 40 miles to the southeast. The Rodgers Creek Fault, which connects with the Hayward Fault beneath San Pablo Bay, is another major fault only about 10 miles away to the west. The area within Hercules would be subject to strong ground motion in the event of a moderate to severe earthquake in the Bay Area. The U.S. Geological Survey has estimated that there is a 67 percent probability that there will be one or more earthquakes of magnitude 7.0 or greater (comparable to the 1989 Loma Prieta earthquake) in the Bay Area in the next 30 years. Ground shaking, rather than surface fault rupture, is the cause of the most damage during earthquakes.

In addition to the active faults noted above, two inactive faults are located in the Hercules vicinity. Two traces of the Pinole Fault pass immediately southwest of Hercules and the Franklin Fault lies about three miles to the northeast. Neither of these two faults shows evidence of surface displacement in Quaternary time (the last two million years), and future

movement along them is much more unlikely than along the active faults associated with the Pinole fault.

The Alquist-Priolo Special Studies Zones Act requires the state to identify zones around "active" faults (those having evidence of surface displacement within about the last 11,000 years) in order to manage development near possible surface rupture sites. There are no Special Studies Zones within Hercules (the closest Special Studies Zone is along the Hayward Fault, about two and one half to four miles to the southwest). The northern end of the Pinole Fault was originally included in a Special Studies Zone, but was removed from the active category after further analysis.

Subsurface Conditions

In 2007, a field exploration of site soil conditions was conducted by ENGEO, Inc. (ENGEO, 2007). Five hand auger borings were drilled to a depth of approximately five feet below ground surface (bgs). The soil characteristics were logged to describe subsurface conditions and samples were collected for geotechnical and environmental testing. A copy of the ENGEO report is included in Appendix D. A majority of the project site is characterized by a layer of fill extending to depths ranging from three to five feet bgs. The fill consists of silty clay material with various amounts of claystone or siltstone fragments. Underneath this upper layer of fill exists a layer of highly expansive native clay, representing the natural bay mud deposits, Borings B2 and B4, which were taken in the marsh/upland transitional parcel and the small channel that traverses the Chelsea Parcel, indicate that this natural Bay Mud layer exists directly below the surface in these areas.

Discussion of Impacts

a-i) *Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

Less than Significant. The proposed project is not located within a mapped fault zone. In addition, the propose project would not create any structures or expose a significant number of people to seismic-related hazards due to ground rupture. The new improvements would be built to all applicable standards of safety. Therefore, impacts related to rupture of a known fault would be less than significant.

a-ii) *Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*

Less than Significant. The project would not create structures or facilities for human habitation or services. Although the project site, like all locations is the San Francisco Bay area, is likely to experience strong seismic shaking in the event of a major earthquake, there would be no significant exposure of persons or structures to seismic risks. Therefore, impacts related to strong seismic shaking would be less than significant.

- a-iii) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?**

Less than Significant. The project would not expose people or structures to potential substantial adverse effects related to seismic induced ground failure, including liquefaction. The Engeo report found the potential for liquefaction to be low due to the absence of substantial sand layers on the project site. Thus, project impacts related to this issue would be less than significant.

- a-iv) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?**

No Impact. The project area is characterized by flat or gently sloping topography, and thus has no potential for landslides. No further discussion is necessary.

- b) Would the project result in substantial soil erosion or the loss of topsoil?**

Less than Significant with Mitigation Incorporated. The proposed project would excavate approximately 40,000 cubic yards of fill from the project site for ecological restoration and flood control purposes. The project would improve erosion control through the use of engineered techniques in conjunction with natural erosion-control fabrics to stabilize banks. However, construction activities could potentially impact Pinole Creek if adequate best management practices (BMPs) are not implemented. Implementation of Mitigation Measure HYDRO-1b (see Section 4.9 of this Initial Study), which requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), would mitigate impacts to a less-than-significant level.

- c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?**

Less than Significant. The project is expected to result in improved stability of the project site. As discussed above, the project site has no potential for landslides and low potential for liquefaction. Project impacts related to this issue would be less than significant.

- d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?**

No Impact. The project does not propose construction of any structures that would be subject to the Uniform Building Code (1994) and would not create substantial risks to life or property.

- e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

No Impact. The proposed project would not require the use of septic tanks or alternative wastewater disposal systems. Therefore, no impacts would occur.

5.7 Greenhouse Gas Emissions

VII. GREENHOUSE GAS EMISSIONS — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13

Environmental Setting

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO₂) and water vapor but there are also several others, most importantly methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO₂ and N₂O are byproducts of fossil fuel combustion.
- N₂O is associated with agricultural operations such as fertilization of crops.
- CH₄ is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO₂ being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO₂ equivalents (CO₂e).

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction

rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California could be adversely affected by the global warming trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

Per Appendix G of the CEQA Guidelines and BAAQMD recommendations, GHG emissions are considered significant if implementation of the proposed project would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

BAAQMD provides guidance in assessing impacts to lead agencies in the Bay Area. In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines. The BAAQMD thresholds were developed specifically for the Bay Area after considering the latest Bay Area GHG inventory and the effects of AB 32 scoping plan measures that would reduce regional emissions. BAAQMD intends to achieve GHG reductions from new land use developments to close the gap between projected regional emissions with AB 32 scoping plan measures and the AB 32 targets. The BAAQMD GHG recommendations include a bright-line emissions threshold of 1,100 metric tons (MT) of CO₂e. Projects that have emissions below 1,100 MT of CO₂e per year are considered to have less than significant GHG emissions.

Discussion of Impacts

- a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Less than Significant. The California Emissions Estimator Model, Version 2013.2.2 (CalEEMod) was used to predict construction emissions in the form of CO₂e (see Appendix A). CalEEMod is a computer model developed by the South Coast Air Quality Management District (SCAQMD) with cooperation of other California Air Districts to estimate air pollutant and GHG emissions from land use development projects. This model predicts emissions associated with construction activities from land use projects. The model is recommended by BAAQMD for use in estimating emissions from land use development projects.

Construction Emissions

Construction of the project would emit 453 metric tons of CO₂e during the entire construction period. Neither Contra Costa County nor the BAAQMD have quantified thresholds for construction activities. The only quantified threshold is 1,100 metric tons annually for operation of land use projects, which construction would be below. The project emissions would be below the lowest threshold adopted by BAAQMD.

Operational Emissions

The project is not anticipated to have long-term GHG emissions.

- b) *Would the project conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?***

No Impact. The proposed project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing greenhouse gas emissions.

5.8 Hazards and Hazardous Materials

VIII. HAZARDS AND HAZARDOUS MATERIALS — Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Source
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,7
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,7
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,12
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2,12
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2

Environmental Setting

"Hazardous materials" are defined in this Initial Study as substances with certain chemical and physical properties that could pose a substantial present or future hazard to human health or the environment if improperly handled, stored, disposed, or otherwise managed.

If improperly handled, hazardous materials can result in public health hazards through human contact with contaminated soils or groundwater, or through airborne releases in vapors, fumes, or dust. There may also be a potential for accidental or unauthorized releases of hazardous materials that would pose a public health concern. For example, in the project site vicinity, soil and groundwater contamination from previous industrial uses is a potential concern.

Construction workers typically have the greatest risk of exposure to contaminated soil or groundwater. If contamination at a site remains undetected, workers and the public may be at risk of exposure if precautions are not taken during site development. Accidents or spills during transport of hazardous materials or wastes can also expose the general public and the environment to these substances.

In June 2013, Geocon conducted a Phase II Environmental Site Assessment (ESA). The Phase II ESA was developed to assess potential impacts to soil and groundwater resulting from historical land use and placement of undocumented fill soil. Additionally, data gathered from the Phase II ESA was used to aid wetlands restoration design and fill material reuse and disposal options. A copy of the Phase II ESA is included in Appendix E.

The field investigation consisted of advancing 16 temporary borings throughout the site and analyzing soil and groundwater samples for contaminants discovered on other portions of the 1,300-acre former Hercules Powder Company property. The purpose of the soil and groundwater sampling was to assess soil and groundwater conditions based on future development as a wetland.

Surface soil samples were analyzed for the following constituents:

- Polychlorinated biphenyls (PCBs)
- CAM 17 metals
- pH

Fill and native soil samples were analyzed for the following constituents:

- Volatile organic compounds (VOCs)
- Semi-volatile organic compounds (SVOCs)
- Total petroleum hydrocarbons as gasoline (TPHg)
- Total petroleum hydrocarbons as diesel (TPHd) and motor oil (TPHmo)
- Organichlorine pesticides
- Herbicides
- CAM 17 metals

- pH
- Explosives

Groundwater samples were analyzed for the following constituents:

- TPHg
- VOCs
- CAM 17 metals

Other than TPHd and TPHmo in soil and individual CAM 17 metals in soil and groundwater, all other target analytes were reported as non-detect during this investigation. The reported TPHd and TPHmo concentrations in soil did not exceed the established environmental screening levels (ESLs) for residential and commercial sites, or those established for construction workers should they come into direct contact with soils containing TPHd and TPHmo.

Cadmium and lead were reported in surface and fill-depth soil samples at concentrations exceeding the screening criteria for beneficial reuse of dredged material as wetland surface material. The cadmium and lead concentrations do not exceed the RWQCB residential, commercial, or construction worker ESLs. Cadmium was reported at a concentration of 1.0 mg/kg in the native cut-depth soil sample analyzed for the B2 composite group. This concentration exceeds the screening criteria for beneficial reuse of dredged material as wetland surface material; however, it does not exceed the RWQCB residential, commercial, or construction worker ESLs.

Several CAM 17 metals were reported in grab groundwater samples at concentrations exceeding the RWQCB ESLs for discharge to freshwater, marine, and estuarine surface waters. However, the reported concentrations are consistent with detections in other site borings and appear to represent naturally occurring metals concentrations in groundwater beneath the proposed wetlands area.

Discussion of Impacts

- a) ***Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?***

No Impact. The proposed project does not involve routine transport, use, or disposal of hazardous materials, and therefore no impact would occur.

- b) ***Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

Less than Significant with Mitigation Incorporated. Based on the soil and groundwater sample results, identified constituents that could be contained in soils graded during the wetlands construction period are below significant levels for human contact. To ensure additional worker safety, soils shall be placed at an elevation above the wetlands high surface water elevation. This would limit the exposure of wetlands

tidal water to surface and fill-depth soils containing cadmium and lead at concentrations exceeding the screening criteria for beneficial reuse of dredged material as wetland surface material.

During construction there would be limited heavy equipment and supplies on the site that could result in a release of hazardous materials such as fuel and lubricants. Therefore, impacts associated with the release of hazardous materials are considered potentially significant.

Mitigation Measure HAZ-1

Soils graded during the wetlands construction project shall be placed at an elevation above the wetlands high surface water elevation. This should limit the exposure of wetlands tidal water to surface and fill-depth soils containing cadmium and lead at concentrations exceeding the screening criteria for beneficial reuse of dredged material as wetland surface material.

Mitigation Measure HAZ-2

The project sponsor shall implement a spill prevention plan, including management and protective measures, emergency response measures as necessary, methods to capture fuel spills, providing a staging area for heavy construction vehicles that prevents leaks into the soil or water, and requiring that maintenance of heavy construction vehicles be conducted off-site.

With implementation of Mitigation Measures HAZ-1 and HAZ-2, impacts to the project resulting from the release of hazardous materials would be reduced to less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. Based on a review of published maps, there are no schools within a quarter mile of the project site. Therefore, there would be no related impact.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less than Significant. The project is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As part of a Phase I Environmental Study (ENGE0 2008) a request for information was submitted to the Contra Costa County Environmental Health Division for information pertaining to several nearby sites that experienced release potentially impacting the site. Four of the County files were reviewed for information to assess the potential impacts to the project site

Cities of Pinole/Hercules WPCP: The Pinole/Hercules Water Pollution Control Plant (aka wastewater treatment plant) is located approximately 300 feet west of the project site at 11 Tennant Avenue. The facility is situated along the bay margin in the City of

Pinole. It was originally built in 1955 and has undergone periodic expansions/modifications in response to the areas growing population. The site is also the location of a City of Pinole vehicle maintenance facility. The WPCP and associated vehicle maintenance facility currently uses above-ground tanks for the storage of hazardous materials

The WPCP facility is listed as a former UST location. In 1996, a hydraulic hoist oil leak was reported in addition to removal of three underground fuel storage tanks (USTs). At the time of the UST removals, a hydraulic hoist leak was reported to affect groundwater. No other mention of the hoist leak was noted in the County file. The County issued a UST Site Closure letter on May 19, 2006.

The facility is listed as a hazardous waste generator due the spent fluids generated by the vehicle maintenance facility. No documented unauthorized releases or material handling violations associated with the maintenance facility were identified during the file review.

Square Deal Garage: The garage, located at 2500 San Pablo Avenue and approximately 2,100 feet south of the project site, is listed as an open case leaking underground storage tank (LUST) facility. The Square Deal Garage operated two 1,200-gallon USTs for storage of gasoline. When the tanks were removed in June 1991, large holes were identified in both tanks. Sampling of the tank pit revealed the presence of significant levels of volatile hydrocarbons and the fuel components remaining in the soil beneath the facility. Concentrations were reported up to 2,400 mg/kg as gasoline range petroleum hydrocarbons, 9.7 mg/kg benzene, 31 mg/kg toluene, 66 mg/kg ethylbenzene, and 230 mg/kg xylenes. The County file did not reveal further study having been performed at the facility. The LUST case is listed as "soil only". The Square Deal Garage is identified as a small quantity generator of hazardous waste for the generation of spent automotive fluids and batteries. No violations were identified in the generator file.

Former Shell Station Shell Oil Co: A gas station operated at the southeast corner of San Pablo Avenue and Tennent Avenue at 2301 San Pablo Avenue in Pinole, located about 1/4-mile south of the project site. The facility location is currently a vacant lot. The gas station/maintenance facility operated from circa-1960 through 2000, when the station was demolished. The facility attained *Case Closed* status by the RWQCB in September 2007. Environmental investigations for the property included advancing numerous soil borings and the installation of 11 groundwater monitoring wells. Remedial activities at the property included the excavation and removal of approximately 1,100 cubic-yards of soil and extraction of about 100,000 gallons of groundwater for off-site treatment or disposal. Low concentrations of residual hydrocarbons were replied to remain in the soil and groundwater beneath the site. Groundwater studies for the facility determined the direction of groundwater flow is the northerly direction. The studies suggested that off-site migration of contaminants was limited to the general vicinity of the facility. The former Shell facility is located on the opposite side of Pinole Creek as the project site.

Pump House: The Pump House is an active gas station-convenience store located at 700 Tennent Avenue, Pinole at the southwest corner of San Pablo Avenue and Tennant Avenue. The facility is about 1/2-mile south-southwest of the project site. A gas station has operated at this location since the early 1960s. The facility is identified as a UST site by the RWQCB. Three gasoline USTs were removed for upgrading in 1994. No documentation of the condition of the USTs or documentation of tank pit confirmation sampling was evident in the County files. However, one of the tanks failed annual pressure testing on at least three occasions. Sampling of soil beneath the product lines revealed the presence of low levels (<1 mg/kg) of petroleum hydrocarbons in soil near a dispenser island. The Pump House facility is located on the opposite side of Pinole Creek as the project site.

Based on the findings of the Contra Costa County Environmental Health Division file review, these facilities would not be considered to have the potential to significantly impact the property.

- e) ***For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?***

No Impact. The project is not included within an airport land use plan or within two miles of a public airport or public use airport, and therefore no impact would occur.

- f) ***For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?***

No Impact. The project is not within the vicinity of a private airstrip, and therefore no impact would occur.

- g) ***Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

Less than Significant. The project would not interfere with or change existing emergency response and evacuation plans, and therefore no impact would occur. The existing utility and fire roads would be maintained for emergency vehicle and fire control access.

- h) ***Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?***

Less than Significant. The project site is located in an urbanized area with almost no wildland fire potential. The Hercules General Plan does not identify any fire hazard areas, and the Hercules General Plan Update EIR does not identify any impacts with respect to wildland fire hazard. The wetlands restoration would reduce wildland fire potential compared to existing conditions.

5.9 Hydrology and Water Quality

IX. HYDROLOGY AND WATER QUALITY — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15
e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15

IX. HYDROLOGY AND WATER QUALITY — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15
j) Inundation of seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15

Environmental Setting

Rainfall and Climate

The climate of the San Francisco Bay is characterized as Mediterranean with cool wet winters and relatively warmer dry summers. The nearest National Weather Service station is located in Richmond, approximately five miles southwest of the project site. The mean annual temperature at the station is 58.4°F. Because the project site is at low elevation and close to the Bay, winter temperatures rarely drop below freezing and snowfall has never been recorded at the Richmond weather station. The average winter (December to February) temperature is 51.4°F, and the average summer (June to August) temperature is 63.1°F.

Annual rainfall varies considerably from year to year. Although the average annual rainfall in Richmond is 22.5 inches, “average” years are rare: only four years in the 52-year record (1951-2003) had rainfall between 22 and 23 inches. In 1994, the year of lowest annual rainfall, only 8.97 inches of rain fell. In contrast, in 1983, the year of highest rainfall, 47.49 inches of rain were recorded. Over 90 percent of annual rainfall typically falls between the months of November and April. Analysis of long-term precipitation records indicate that wetter and drier cycles, lasting several years, are common in the region.

Drainage

Pinole Creek Watershed

The project site is located in the lower reaches of the Pinole Creek Watershed which covers approximately 15.3 square miles in the cities of Pinole and Hercules, as well as unincorporated Contra Costa County. The watershed has approximately 33 miles of blue line streams. The lower third of the Pinole Creek watershed is urban, the middle third is protected by EBMUD, and most of the upper third is in the Briones Agricultural Preserve.⁴

Pinole Creek

Adjacent to the project site, the Pinole Creek channel in its current alignment was constructed by the Corps in the 1960s to improve its capacity for flood control. It is now maintained by the CCCFCWCD under an operations and maintenance agreement with the USACE. In 2010 and

⁴ East Bay Municipal Utility District Natural Resources Department Fisheries & Wildlife Division, *Upper Pinole Creek Watershed Salmonid Habitat Assessment*, July 2009.

2011, the Lower Pinole Creek Demonstration Project was completed along the downstream 3,000 feet of Pinole Creek, including the reach adjacent to the project site. The project aimed to improve flood control and public access while also enhancing the riparian and aquatic habitat value of Pinole Creek. The project included the following components:

- Channel excavation to create low floodplain terraces
- Construction of approximately 2,400 linear feet of floodwalls
- Construction of a new pedestrian bridge
- Construction of 1,200 linear feet of trail
- Restoration of 2.55 acres of marsh plain and adjacent upland habitat
- Vegetation and landscape management
- Pathway lighting
- Interpretive signs and benches

Adjacent to the project site, Pinole Creek runs in an earthen-lined channel with low flood terraces on either side of a trapezoidal low flow channel. The low flow channel has a width of approximately 25 feet and the overall channel including flood terraces has a width of approximately 100 feet. Additional descriptions of the channel geometry are available in the Chelsea Wetland Restoration Project Risk and Uncertainty Analysis included as Appendix F-1 and the 2014 Chelsea Wetland Restoration Project Hydraulic Analysis Technical Memorandum included as Appendix F-2. Just downstream from the project site, there are three bridges across Pinole Creek including the new pedestrian bridge, an abandoned vehicle bridge, and a railroad bridge. Just downstream from the railroad bridge, Pinole Creek drains into San Pablo Bay. Thus, the reach of Pinole Creek adjacent to the project site is tidally influence.

Chelsea Wetlands

The project site drains from the northeast into Pinole Creek through a 36-inch diameter culvert with a tide gate. A drainage ditch runs to the culvert along the southeastern extent of the project site, connecting to a vegetated channel along Santa Fe Avenue that drains a portion of the City of Hercules.

Flooding

Most floods on undeveloped bay margins are caused by an intense rainstorm that comes after a prolonged period of rainfall has saturated the ground. Flooding is most common in the low-lying areas around the mouths of rivers that drain to the Bay. In urban areas, flooding can also result from the overflow of undersized or blocked storm sewers. Coastal floods are exacerbated by high tide events that tend to push the water landward and resists the flow down the river or creek.

Most of the project site and adjacent residential neighborhoods are within the 500-year flood plain (Zone X) and are also susceptible to shallow flooding during 100-year events (FEMA, 2013). The proposed project would construct floodwalls around the project site which would

greatly reduce the risk of flooding for the adjacent residential neighborhoods. Within the project site, as a result of the project tidal and storm flow inundation would be increased to restore the area to a naturally functioning tidal wetland.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the 100-year flood flow is contained within the channel of Pinole Creek for most of the length of the channel. The Detail Project Report prepared by the USACE for Pinole Creek in 1962 designed the flood control channel to provide protection against the 50-year flood discharge of 2,600 cubic feet per second (cfs).⁵ Over the years the lower portion of the Pinole Creek have aggraded from original USACE design. This resulted in a loss of channel capacity that was less than the 2,600 design capacity. However, more recent hydraulic analysis of the channel performed by the CCCFCWCD in 2009 determined that floodwalls or levees with a top height of 14 feet (NAVD88) should be constructed along both sides of Pinole Creek to prevent flooding during 50-year events and maintain the design level of flood protection for the area.

Surface Water Quality

The freshwater runoff evident within the project vicinity is primarily affected by non-point source pollutants coming from upstream within the Pinole Creek watershed. Pinole Creek is the main surface water body that occurs on the project site, although there is also the ditch running along the southeast extent of the project site that drains adjacent residential neighborhoods.

As previously described, Pinole Creek drains a combination of rural and urban lands and is tidally influenced within the project area. Therefore, the water quality of Pinole Creek at high tide is similar to the water quality of San Pablo Bay.

A technical report on San Pablo Bay sediment, benthic organism, surface water, and groundwater was prepared in November 2011.⁶ Water quality and bioavailability data, collected by the State Mussel Watch Program and SFEI since 1980, was only available for San Pablo Bay near neighboring Point Pinole. Sediments from the project site vicinity are expected to have similar contaminants levels as sediment obtained near Point Pinole.

At Point Pinole, only copper was found to be above environmental screening levels although this was lower than concentrations found at water quality stations elsewhere in the Bay. With regard to bioavailability, organic contaminants in San Pablo Bay are present in aquatic organism tissue at less than significant levels and overall bioavailability of these contaminants is generally decreasing. The heavy metals arsenic, chromium, nickel, and zinc are currently present in aquatic organism tissue on average at higher than historical (pre-1993) average levels although not outside the historical range. Arsenic, cadmium, and selenium are present in aquatic organism tissue at levels which may cause health affects to the bivalves themselves and humans consuming them. However, with regards to cadmium and selenium this is lower than

⁵ U.S. Army Corps of Engineers, San Francisco District (USACE). 1962. *Detailed Project Report, Local Flood Protection Project, Pinole Creek, Contra Costa County, California*. 1962.

⁶ Questa Engineering Corp., 2011. *Sediment, Benthic Organism, Surface Water and Groundwater Quality*.

the historical average and their elevated presence can be attributed to natural causes. Overall bioavailability of heavy metals appears to be decreasing, but trend data is limited for arsenic, mercury, and chromium.

A limited amount of water quality analysis has been conducted on Pinole Creek, but as an urban stream, it is affected by stormwater runoff from streets, parking lots, roofs, lawns and landscaped areas. Even in the reaches of Pinole Creek upstream from urban development, there is an abundance of algal growth, despite shading from a mostly intact canopy. This is likely an indication of upstream nutrient loading, possibly from agriculture, horse stables, ranches and a new cemetery.⁷

Monitoring of benthic macro-invertebrate communities by the Contra Costa Watershed Forum (CCWF) indicate that BMI community health is relatively low in the lower part of the watershed compared to more upstream areas (CCWF 2006). Fine sediments and turbidity are somewhat elevated in lower Pinole Creek and may be the result of watershed soil characteristics or chronic disturbance in the relatively urbanized lower watershed.⁸ Pinole Creek's low summertime flows also leads to poor water quality.

Groundwater

Throughout the project area, groundwater elevation is generally commensurate with mean sea level although there could be some transient perched freshwater aquifers during the rainy season.

Groundwater Quality

Due to the proximity of the Chelsea Marsh to the San Pablo Bay, groundwater is generally saline and brackish. There are no known drinking water supply wells near the project.

Regulatory Framework

This section describes the regulatory setting as it relates to hydrology and water quality in the project site.

There is a well-established regulatory framework of federal and State laws for floodplain management and protection of water quality, which would apply to the project site. These regulations establish requirements for projects in flood-prone areas and water quality criteria for the protection of human health and the environment, including storm water discharges to surface water. The regulations are discussed below.

⁷ East Bay Municipal Utility District Natural Resources Department Fisheries & Wildlife Division, *Upper Pinole Creek Watershed Salmonid Habitat Assessment*, July 2009.

⁸ Hagar Environmental Science and Pacific Biology, *Lower Pinole Creek Steelhead Habitat Assessment*, July 2009.

Federal Agencies, Programs and Regulations

Federal Emergency Management Agency (FEMA)

FEMA issues Flood Insurance Rate Maps FIRMs that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA's minimum level of flood protection for new development is the 100-year flood event, also described as a flood that has a 1-in-100 (1 percent) chance of occurring in any given year. The area with this designation is also referred to as the 100-year flood plain. FEMA also designates the area with a 1-in-500 chance (0.2 percent) of flooding in a given year, or the 500-year flood plain.

The FIRM for the project site is included in Appendix F-3. The map is dated June 16, 2009 and there have been no amendments since that time. The 2009 FIRM shows the core of the project site as Zone X, "Areas of 0.2 percent annual chance flood; areas of one percent annual chance flood with average depths of less than one foot or with drainage areas less than one square mile; and areas protected by levees from one percent annual chance flood."

Areas marked as Zone X include much of the project site and also residential portions of the City of Hercules located to the southeast of the project site (Appendix F-1).

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. The insurance rate offered to communities is based on the designations shown on the FIRMs and recorded in the updates known as Letters of Determination.

Clean Water Act (CWA)

The Clean Water Act (CWA) of 1972 is the primary federal law that governs and authorizes water quality control activities by the U.S. Environmental Protection Agency (EPA) as well as the states. Various elements of the CWA address water quality, and they are discussed below. Wetland protection is administered by the USACE under Section 404 of the CWA, including permits to dredge or fill wetlands.

Section 401: Wetland Filling

Under Section 401 of the CWA, an applicant for a Section 404 permit to discharge dredged or fill material into waters of the United States must first obtain a certificate from the appropriate State agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the State Water Resources Control Board (SWRCB) to the nine Regional Water Quality Control Boards (RWQCBs).

Section 303: Water Quality Standards and Total Maximum Daily Loads (TMDLs)

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question and (2) criteria that protect the designated uses. Water Quality standards applicable to the project site are listed in the Water

Quality Control Plan for the San Francisco Bay Basin. Section 303(d) of the CWA requires states to make a list of waters that are not attaining standards and requires them to develop a set of Total Maximum Daily Loads (TMDLs) (see below under State Water Resources Control Board (SWRCB)). San Francisco Bay Central is on the Section 303(d) list as impaired by: chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, and selenium.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems. NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify limits on allowable concentrations in the effluent and receiving water, and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring and other activities. NPDES permits are issued by the SWRCB (see below).

State Plans, Policies, and Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 is California's statutory authority for the protection of water quality. Under the Act, the State must adopt water quality policies, plans and objectives that protect the State's waters for the use and enjoyment of the people. The Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans). Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives and implementation programs are established for each of the nine regions in California. The project site falls under the San Francisco Bay Region Hydrologic Basin Planning Area Map.

The Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge (RWD) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals.⁹

State Water Resources Control Board (SWRCB)

In California, the SWRCB has broad authority over water quality control issues for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Regional authority

⁹ *Porter-Cologne Water Quality Act's website. <http://ceres.ca.gov/wetlands/permitting/porter.html>, accessed September 8, 2009.*

for planning, permitting and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans.

NPDES Construction General Permit

The SWRCB permits all regulated construction activities under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity.¹⁰ The permit is administered at the County level. Construction activities that disturb one acre or more of land must comply with a Construction General Permit that regulates storm water leaving construction sites. The project applicant must file Permit Registration Documents (PRDs) before beginning construction, including filing a Notice of Intent (NOI), and a Stormwater Pollution Prevention Plan (SWPPP).

The SWPPP must be implemented and monitored to ensure its effectiveness. The plan, which must also address control of pollutants in stormwater post-construction, must be on-site and available to inspectors. A SWPPP must include “Best Management Practices” (BMPs) designed to reduce potential impacts to surface water quality through the construction and life of the project. Under the 2009 revision to the Construction General Permit, for discharges to water bodies that have beneficial uses such as fish spawning and fish migration, the project would at least be a Risk Level 2 project subject to Numeric Action Levels and some additional monitoring requirements. If erosion potential is considered high, the project could be determined to be a Risk Level 3 project subject to Numeric Effluent Limits, and more rigorous monitoring requirements, including receiving water monitoring or bioassessment.

NPDES Post-Construction Stormwater Quality

Post-construction stormwater management is covered by a different set of BMPs under the NPDES permit system. The intent of these regulations is to rigorously control the quality and quantity of stormwater runoff from any new development that creates or replaces impervious area over 10,000 square feet, so that receiving waters downstream are not adversely impacted.

To comply with these requirements, new projects are required to install water quality, stormwater runoff BMPs that filter or treat rainfall runoff generated from storm events up to approximately the 85th percentile rainfall event (or approximately the 1-inch storm event) before discharging into storm drains or natural drainage systems. Projects over 10,000 square feet are required to capture 100 percent of rainfall runoff from new impervious surfaces and to treat it in post-construction stormwater systems. Projects that begin after December 2012 must reuse the water on-site, unless that reuse is proven to be “infeasible.” If the water is reused in irrigation, it is returned to the aquifer.

California Fish and Wildlife Code

The CDFW protects streams, water bodies and riparian corridors through the streambed alteration agreement process under Section 1601 to 1606 of the California Fish and Wildlife

¹⁰ Order No. 2009-009-DWQ, NPDES No. CAR000002, adopted September 2, 2009.

Code. The CDFW stipulates that it is “unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake” without notifying the Department, incorporating necessary mitigation and obtaining a streambed alteration agreement. CDFW’s jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

Regional and County Programs and Regulations

Regional Water Quality Control Board (San Francisco Bay Region)

The project site is within the jurisdiction of the San Francisco Bay RWQCB. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the San Francisco RWQCB’s master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives.

Basin Plan for San Francisco Bay

The Basin Plan established water quality objectives for total dissolved solids (TDS), mineral constituents, and turbidity on a watershed-by-watershed basis within the region, while objectives for total and fecal coliform bacteria, nutrients (total nitrogen and total phosphorus), pH, dissolved oxygen, and un-ionized ammonia are set on a region-wide basis.

Total Maximum Daily Loads (TMDLs)

Under section 303(d) of the Clean Water Act, States, territories, and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards set by the relevant regulatory agency. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop a calculation of the maximum amount of a pollutant that the impaired water body can receive and still safely meet water quality standards.¹¹ This calculation is called a Total Maximum Daily Load (TMDL). The TMDL approach provides a framework for evaluating pollution control efforts and for coordination between federal, State, and local efforts to meet water quality standards. TMDLs are adopted as amendments to the Basin Plan.

Contra Costa Clean Water Program (CCCWP)

The City of Hercules is one of 20 jurisdictions in Contra Costa County that partner with the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) to operate and fund a countywide Contra Costa Clean Water Program (CCCWP). The program was necessary to comply with the federal water quality requirements and was implemented on a countywide level to save on program costs.

¹¹ U.S. Environmental Protection Agency (EPA). *Impaired Waters and Total Maximum Daily Loads*, <http://www.epa.gov/OWOW/tmdl/>, accessed on February 25, 2010.

Contra Costa County Flood Control and Water Conservation District (CCCFCWCD)

The CCCFCWCD manages flood control facilities in the area, including Pinole Creek. Flood control improvements, including channel maintenance are carried out by the CCCFCWCD, and they are also the local sponsor for the Corps Flood Control Project Improvements to Pinole Creek. Any modifications of this existing flood control facility would require approval from the CCCFCWCD through its flood control permit process and from the Readiness Branch of the San Francisco District, U.S. Army Corps of Engineers. CEQA compliance is required for the issuance of flood control permits, and for land transactions and agreements that involve CCCFCWCD.

Contra Costa County is further divided into a system of drainage areas (DA) that loosely follow the natural watershed boundaries but are legal entities and allow CCCFCWCD to plan major drainage infrastructure. There are two kinds: “formed” and “unformed” DAs. The project site is located in County Drainage Area 69, an “unformed” drainage area. Drainage facility improvements and maintenance in unformed drainage can be funded by County property tax assessments.

Contra Costa County Mosquito and Vector Control District (CCCMVCD)

Small, isolated areas of standing water present a health hazard as they can become breeding grounds for mosquitoes carrying diseases such as West Nile Virus. West Nile Virus has been recorded in Contra Costa County. The Contra Costa County Mosquito and Vector Control District (CCCMVCD) is responsible for draining areas of standing water. Existing conditions in the project site have potential for mosquito breeding. CCCMVCD also uses other methods to kill mosquito larvae, using predators, natural pathogens, and insecticides.

City of Hercules

NPDES Municipal Regional Stormwater Permit

As part of the Contra Costa Clean Water Program, the City of Hercules is covered under a Municipal NPDES permit. Besides regulating post-construction stormwater management practices, the permit requires municipalities to adopt trash and street sweeping programs to regulate discharges into storm drain systems or directly into Waters of the United States.

Public Works Department

The Department is responsible for the design of new storm sewer infrastructure and is also responsible for maintenance of the storm sewer system, including its outlets into creeks and the Bay, and for removing trash and other debris.

Planning & Engineering Departments

The Planning & Engineering Departments are responsible for review of grading, drainage, and building plans for conformance with City of Hercules Municipal Code, including stormwater management and floodplain regulations.

City of Hercules Municipal Code

Title 10, Chapter 7 of the Municipal Code is relevant to the hydrology and water quality aspects of the proposed project and would apply to the project during construction activities.

Discussion of Impacts

a) *Violate any water quality standards or waste discharge requirements*

Less than Significant with Mitigation Incorporated. The proposed project would not violate any water quality standards or waste discharge requirements. While long-term water quality impacts from site restoration are expected to be beneficial, construction that would disturb approximately 11 acres of ground could potentially cause short-term impacts to the project site. During construction the proposed project could potentially violate water quality standards or waste discharge requirements if sediment-laden runoff from disturbed work areas enters local waterways and increases turbidity or if fuel or other construction chemicals are accidentally spilled or leaked into the water resulting in a significant impact.

Mitigation Measure HYDRO-1a

Detailed plans for temporary construction-related erosion control shall be incorporated in the project plans. Construction plans shall specify all erosion and sediment control measures, including (where applicable):

- Limiting access routes and stabilizing access points.
- Stabilizing graded areas as soon as possible with seeding, mulching, erosion control materials, or other effective methods.
- Delineating clearing limits, easements, setbacks, sensitive areas, vegetation, and drainage courses by marking them in the field.
- Stabilizing and preventing erosion from temporary conveyance channels and outlets.
- If rainfall occurs, using sediment controls and filtration to remove sediment from water collected on-site during construction.

Mitigation Measure HYDRO-1b

A Stormwater Pollution Prevention Plan (SWPPP) and a Spill Control and Countermeasures Plan (SCCP) shall be prepared. Specific measures, as cited below, shall be adapted from the most current edition of the Stormwater Best Management Practice Handbook for Construction, published by the California Stormwater Quality Association (CASQA). The SWPPP shall include Best Management Practices (BMPs) to prevent or minimize stormwater pollution during construction activities, and post construction. The project Erosion Control and Revegetation Plan, and a Spill Control and Countermeasures Plan, shall be included in the SWPPP, and in the Construction Documents. The City of Hercules shall be responsible for compliance with all applicable plans and permit stipulations. BMPs shall be prepared and implemented to control

short-term construction-related water quality impacts. BMPs shall include at a minimum the following measures:

- Use temporary measures, such as flow diversion, temporary ditches, and silt fencing or straw wattles.
- Surface disturbance of soil and vegetation shall be minimized; existing access and maintenance roads shall be used wherever feasible.
- Any stockpiled soil shall be placed, sloped, and covered so that it would not be subject to accelerated erosion.
- Accidental discharge of all project-related materials and fluids into local waterways shall be avoided by using straw rolls or silt fences, constructing berms or barriers around construction materials, or installing geofabric in disturbed areas with long, steep slopes.
- After ground-disturbing activities are complete for each area, non-tidal marsh graded or disturbed areas shall be covered with protective material such as mulch, and re-seeded with native plant species. The Erosion Control and Revegetation Plan shall include details regarding site preparation, topsoiling, seeding, fertilizer, mulching, and temporary irrigation.

Mitigation Measure HYDRO-1c

All refueling and/or maintenance of heavy equipment shall take place at a minimum of 50 feet away from the top of bank of Pinole Creek and all identified jurisdictional wetlands and Waters of the U.S. drainage courses. The refueling/maintenance and construction staging area shall be bermed, graveled or covered with straw and incorporate measures for capture of any accidental spills.

With implementation of the control measures described above: preparation of and adherence to a SWPPP and SWCC, and creek and wetland protection from refueling or vehicle maintenance, impacts to water quality standards would be reduced to less than significant.

- b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.***

Less than Significant. The proposed project does not involve groundwater pumping or construction of large impervious areas. There are therefore no activities that would affect groundwater supplies or recharge in the area and the impact would be less than significant.

- c) ***Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.***

Less than Significant Impact with Mitigation Incorporated. The proposed project would involve substantial earthwork and grading, including the construction of new tidal channels and an arch culvert connecting the project site to Pinole Creek. This could potentially result in substantial erosion or siltation on- or off-site that could adversely affect the quality of receiving waters, including Pinole Creek and adjacent San Pablo Bay waters. With implementation of Mitigation Measures HYDRO-1a and 1b, impacts would be reduced to less than significant.

The proposed new culvert connecting Chelsea Wetlands with Pinole creek would be located along the northern bank. The proposed culvert would not be in the main flow path of the Pinole Creek and would not pose any flow obstruction. The culvert wing walls flush with the bank and the flow past culvert would be quiet and non-turbulent. Based on the position of the culvert it is very unlikely that the new culvert would initiate and worsen existing erosion conditions in the creek. Ongoing maintenance operations by Contra Costa County for Pinole Creek would not be interrupted or impacted by the proposed project. The City would maintain the Chelsea Wetlands portion of the project site.

- d) ***Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff or otherwise substantially degrade water quality.***

Less than Significant. The proposed project would not result in an increase in stormwater runoff to Pinole Creek and would install a larger culvert to drain the project site and drainage channel. Therefore, the project would not adversely affect capacity of the existing off-site stormwater drainage system. This is considered a less than significant impact.

- e) ***Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.***

Less than Significant with Mitigation Incorporated. The project proposes to install a new arch culvert connecting the project site to Pinole Creek along the northeast bank of Pinole Creek. In addition, significant grading within the project site would alter the course of the ditch that currently drains the adjacent residential neighborhoods within the City of Hercules. Floodwalls would be installed around the project site with top elevations that match the floodwalls installed along Pinole Creek.

Pinole Creek and the project site could flood onto neighboring properties if the new floodwalls are designed without appropriate consideration of the likely Creek flows, resulting in a potentially significant impact.

Mitigation Measure HYDRO-2a

The project shall comply with recommendations from the design-level Chelsea Wetland Restoration Project Risk and Uncertainty Analysis. In addition, proper engineering design of the arch culvert, wetland restoration features, and floodwall shall be performed in accordance with the recommendations of a Registered Civil Engineer experienced in hydraulic analysis and design of flood control measures.

Mitigation Measure HYDRO-2b

The project shall obtain grading and building permits from the City of Hercules. Review of the grading, drainage, arch culvert, and floodwall plans shall be completed by the respective divisions and departments for adherence to the City of Hercules Municipal Code, Title 10, Chapter 7 which regulates the prevention of flood damage.

The project shall also obtain approval from the CCCFCWCD and the USACE under Section 408 of the 1890 Rivers and Harbors Act, for modifications to an existing flood control facility.

With adherence to the recommendations of the Risk and Uncertainty Analysis report and appropriate review of plans by regulatory agencies, the impact would be less than significant.

f) *Otherwise substantially degrade water quality.*

Less than Significant. The proposed restoration of the project site would not substantially degrade water quality by any other mean.

g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.*

No Impact. No housing would be built as part of the project and there would be no impact.

h) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows.*

Less than Significant with Mitigation Incorporated. As discussed in Criterion e, above, the project proposes to install a new arch culvert connecting the project site to Pinole Creek along the northeast bank of Pinole Creek. In addition, significant grading within the project site would alter the course of the ditch that currently drains the adjacent residential neighborhoods within the City of Hercules. Floodwalls would be installed around the project site with top elevations that match the floodwalls installed along Pinole Creek, which were designed for the 50-year flood event. With implementation of Mitigation Measures HYDRO-2a and 2b, the impact would be less than significant.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Less than Significant. The modifications to lower Pinole Creek included in the proposed project would improve flood control in the Pinole Creek area, and therefore reduce the risk and degree of flooding in the vicinity. The impact would therefore be less than significant.

j) Inundation by seiche, tsunami, or mudflow.

Less than Significant. The new access road and wetland could potentially be inundated by a large tsunami or seiche event. Portions of the project site are located within a tsunami hazard zone as indicated on the July 2009 Tsunami Inundation maps published by Cal Emergency Services Agency.¹² However, no structures are proposed associated with this project that could be damaged by a seiche or tsunami. The Contra Costa County Emergency Services would rely on its existing system of emergency notification developed for multi-hazard response to warn trail users and close trail segments as necessary. Therefore, the impact would be less than significant.

¹² California Emergency Management Agency, 2009, *Tsunami Inundation Map for Emergency Planning: Richmond Quadrangle/San Quentin Quadrangle*, http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/ContraCosta/Pages/ContraCosta.aspx.

5.10 Land Use and Planning

X. LAND USE AND PLANNING – Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,10
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2,10
c) Conflict with any applicable habitat conservation plan or natural communities conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,10

Environmental Setting

The project site is in the East Bay region of the San Francisco Bay area, within western Contra Costa County. The northern edge of the project site is at terminus of Santa Fe Avenue in the City of Hercules, while the southern edge is at the lower reach of Pinole Creek within the tidal influence of San Pablo Bay in the City of Pinole.

The project site is comprised of three land parcels and a portion of Pinole Creek owned by different entities. The main “Chelsea parcel” (8.1 acres) is owned by the City of Hercules. The second parcel, which runs along the southern boundary of the project site, is owned by the Chelsea-by-the-Bay Homeowners Association (HOA) (5.3 acres). Pacific Gas & Electric (PG&E) owns a small parcel (0.4 acre) within the City of Pinole between the main Chelsea parcel and Pinole Creek.

The Assessor's Parcel Numbers for the site are 404-020-049 and 404-351-131 in the City of Hercules and 401-040-003 and 401-040-002 in the City of Pinole. According to Contra Costa County Assessor's Office, there is no physical address for the parcels.

Discussion of Impacts

a) *Physically divide an established community?*

No Impact. The project involves restoration of tidal marshland on existing open space parcels. These tidal marshlands abut the San Pablo Bay, and therefore would not divide an established community.

- b) **Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

Less than Significant. The *General Plan Guidelines* published by the State Office of Planning and Research defines consistency as, “An action, program, or project is consistent with the general plan if, considering all its aspects, it would further the objectives and policies of the general plan and not obstruct their attainment.” Therefore, the standard for analysis used in this Initial Study is based on general agreement with the policy language and furtherance of the policy intent (as determined by a review of the policy context).

The determination that the project is consistent or inconsistent with the General Plan policies or other City plans and policies is ultimately the decision of the City of Hercules. Furthermore, although CEQA analysis may identify some areas of general consistency with City policies, the City has the ability to impose additional requirements or conditions of approval on a project, at the time of its approval, to bring a project into more complete conformance with existing policies. The project’s consistency with individual City of Hercules and City of Pinole General Plan policies is evaluated in the Tables 7 and 8 below.

Table 7. City of Hercules General Plan Policy Consistency Analysis

Policy/Guideline	Proposed Project
Land Use	
OBJECTIVE I: Achieve a level of population and employment which preserves and enhances the desired character of the community.	
Policy 1A: Encourage and only allow development that is consistent with the Land Use Diagram, Land Use Categories; and objectives, policies and programs of the Land Use Element.	As described in Section 3.0 (Project Description), the proposed project is restoration of public open space. It would not alter the project parcels existing land use designation of open space.
OBJECTIVE 14: Protect and enhance significant and desirable environmental attributes and features.	
Policy 14A: Develop trail systems, open space, and other amenities that benefit the quality of life in the community.	As described in Section 3.0 (Project Description), the proposed project would create two public viewing points along the San Francisco Bay Trail. These two viewpoints would have signage describing the ecological and flood control features of the wetlands. In addition, the project would place signs on the east and west boundaries of the project site along the Bay Trail, identifying the Chelsea Wetlands and describing the wetland restoration process.
Policy 14B: Preserve the existing natural topography, ridgelines and valleys where feasible and desirable.	As described in Section 3.0 (Project Description), the proposed project would restore tidal wetlands and recreate the natural topography of the site.

Open Space and Conservation	
OBJECTIVE 1: Provide adequate recreation, park and open space resources as the community expands.	
Policy 1a: Expand the community's park, trail and open space system to meet the demands of future growth. The comprehensive park, trail and open space system shall provide linkages between developed and developing areas.	Please see Policy 14A.
OBJECTIVE 2: Preserve seasonal freshwater wetlands.	
Policy 2a: The City shall require project proponents to design construction footprints to avoid any wetlands and buffer zones around the wetlands. If avoidance is not possible projects shall be redesigned so as to impact the least amount of wetlands. Any areas that are classified as wetlands and will be affected by project development shall be recreated either on or off site in accordance with CDFG and CaE.	As described in Section 3.0 (Project Description), the proposed project is the restoration of tidal marshland and wetlands.
OBJECTIVE 4: Protect riparian and wetland communities from degradation through introduction of urban pollutants in stormwater runoff.	
The City shall require project proponents to design facilities to prevent degradation of riparian and wetland communities from urban pollutants in storm runoff.	As described in Section 3.0 (Project Description), the proposed project would act as an offline detention basin.
OBJECTIVE 5: Preserve salt marsh zones along San Pablo Bay.	
Policy 5a: The city shall review development proposals for consistency with minimizing impacts to salt marsh zones. Buildings shall be located on existing developed or graded areas where practicable,	Please see Policy 2a.
OBJECTIVE 6: Protect native plant communities and habitats for special-status plant and animal species.	
Policy 6a: The City shall continue to utilize environmental review under CEQA to review development projects that not exempt from the California Environmental Quality Act for impacts on sensitive species and their habitat.	The proposed project has been evaluated through coordination with and consultation from the City. The Initial Study would be reviewed under the City's environmental impact analysis process.
OBJECTIVE 10: Reduce flooding potential within flood prone areas.	
Policy 10a: Ensure that adequate drainage facilities and pollution prevention and control infrastructure are built accommodate the increase in runoff from newly developed areas.	As described in Section 3.0 (Project Description), the proposed project would act as an offline detention basin. Implementation of the proposed project would provide a net increase in stormwater runoff control.
OBJECTIVE 11: Improve air quality within the community	
Development within the City shall be conditioned to reduce air quality impacts during construction and subsequent operation.	As described in Section 5.3 (Air Quality), the proposed project would result in less-than-significant air quality impacts during construction after mitigation.
OBJECTIVE 12: Protect and preserve important historic and prehistoric resources	
Policy 12a: Prehistoric resources shall be identified and preserved to the extent feasible. If previously unknown subsurface cultural resources are discovered during excavation activities on the identified parcels or elsewhere in the study area, excavation would be temporarily halted and an archaeologist consulted as to the importance of the resources. Should the archaeologist determine that the resources are important; the project sponsor would follow the procedure described in Program 12a.2.	As described in Section 5.5 (Cultural Resources), the proposed project would require mitigation measures to implement Policy 12a.

Safety	
OBJECTIVE 1: Consider potential seismic, geologic, flood and fire hazards and introduce adequate safety measures in development plans and proposals.	
Policy 1A: Seismic, geologic, flood and fire safety policies will be integrated into other mandatory elements of the General Plan. Administration and enforcement of municipal regulations provide positive measures for implementing safety policies.	As described in Section 5.6 (Geology and Soils), 5.8 (Hazards and Hazardous Materials), and 5.9 (Hydrology and Water Quality) after conformance with all required regulations, ordinances, mitigation measures and codes, the proposed project would have a less-than-significant impact in regards to fire, flood and geological conditions.
OBJECTIVE 2: Minimize exposure of public facilities and development to seismic hazards.	
Policy 2D: The administration of subdivision and grading ordinances should allow for flexibility in the review and approval of construction plans to permit sound engineering design in the solution of specific geological problems. Site-specific geotechnical investigations shall be required for every new development.	As described in Section 5.6 (Geology and Soils), after conformance with all required regulations, ordinances, mitigation measures and codes, the proposed project would have a less-than-significant impact in regards to geological conditions.
OBJECTIVE 4: Reduce flood hazards through flood channel improvements and development standards.	
Policy 4B: New Development shall be located and designed to minimize generation of and exposure to flood hazards.	Please see Policy 10a.
Noise	
Policy 2: New non-residential land development projects shall meet acceptable exterior noise level standards set forth in the General Plan. The noise contour map on file at City Hall shall be used to screen projects to determine if acoustical studies will be required.	As described in Section 5.12 (Noise), the proposed project would meet acceptable exterior noise level standards during construction activities with implementation of mitigation measures that would reduce noise impacts.
Policy 6: Control the level of noise at noise-sensitive land uses generated by construction activities through implementation of the following measures: Reduce the level of truck-generated noise in residential areas through implementation of the following restrictions: <ul style="list-style-type: none"> The City shall restrict truck traffic in residential areas except for non-regular deliveries within the area or on designated truck routes. The City shall review and update the noise ordinance to limit truck traffic noise impacts to sensitive receptors. 	As described in Section 5.12 (Noise), the proposed project would require the Contractor to develop a construction noise mitigation plan, which considers the following available controls, to reduce construction noise levels as low as practical. Reasonable and feasible noise control measures implemented at the construction site, as summarized below, would reduce construction noise levels by 5 to 10 dBA

Table 8. City of Pinole General Plan Policy Consistency Analysis

Policy/Guideline	Proposed Project
Opens Space and Conservation	
GOAL OS.1: Ensure the preservation of natural resources by determining appropriate land use and compatibility with natural resources and open space.	
POLICY OS.1.1: Habitat Preservation. The City shall protect and preserve open space and remaining natural areas. Preserve oak/woodland, riparian vegetation, creeks, fisheries, saltwater and freshwater marsh, native bunchgrass grasslands, wildlife corridors and sensitive nesting sites. Loss of these habitats should be fully offset through creation of habitat of equal value. Compensation rate for habitat re-creation shall be determined by a qualified biologist in consultation with resource agencies.	As described in Section 3.0 (Project Description), the proposed project is the restoration of tidal marshland and wetlands. The proposed project would return the project site its historic tidal marshland form.
POLICY OS.1.2: Agency Cooperation. Work with Federal, State and local regulatory and trustee agencies to promote the long-term sustainability of local natural resources.	Please see Policy OS.1.1
POLICY OS.1.5: Integrated Management. Work toward integrated management of tidal areas and drainages within the City limits.	As described in Sections 3.0 (Project Description) 5.8 (Hazards and Hazardous Materials), and 5.9 (Hydrology and Water Quality), the proposed project would restore natural tidal and drainage flows.
POLICY OS.1.6: Access to Wetlands. Provide appropriate access to wetlands.	As described in Section 3.0 (Project Description), the proposed project would create two public viewing points along the San Francisco Bay Trail. These two viewpoints would have signage describing the ecological and flood control features of the wetlands. In addition, the project would place signs on the east and west boundaries of the project site along the Bay Trail, identifying the Chelsea Wetlands and describing the wetland restoration process.
POLICY OS.1.7 Transitional Zones. The City will condition or modify development approvals to ensure that natural transitions along the edges of different habitat types are preserved and enhanced because of their importance to wildlife. Maintain proper buffers between sensitive habitat and conflicting land uses. Habitat types of particular concern are those along the margins of riparian corridors, marshlands, and oak woodlands. Preserves and areas with special conservation status must have compatible surrounding land uses.	Please see Policy OS.1.1
GOAL OS.2: Sustain, protect, and enhance natural communities, including special-status plants, special-status wildlife, and comply with all applicable Federal, State and local regulatory and trustee agencies.	
POLICY OS.2.1: Protection of Native Vegetation. Protect, preserve and create the conditions that will promote the preservation of significant trees and other vegetation, particularly native to California and the region.	Please see Policy OS.1.1

Policy/Guideline	Proposed Project
<p>POLICY OS.2.5: Riparian Habitat Restoration. Require restoration or replanting of riparian vegetation to the extent feasible, projects shall mitigate impacts to wetlands consistent with Federal and State policies to ensure that there is no net loss in a regional context.</p>	<p>Please see Policy OS.1.1</p>
<p>GOAL OS.3: Protect, preserve, and restore open spaces.</p>	
<p>POLICY OS.3.6: Minimize Environmental Impacts. Encourage development patterns which minimize impacts on the City's biological, visual, and cultural resources, and integrate development with open space areas.</p>	<p>Please see Policy OS.1.1</p>
<p>POLICY OS.3.7: Preserve Natural Features. Retain sensitive habitat areas in their natural state, where possible, and protect from inappropriate development and landscaping. New development shall incorporate natural features present on the site such as a creek, steep topography or natural vegetation, where feasible, unless appropriate mitigation measures can be incorporated.</p>	<p>Please see Policy OS.1.1</p>
<p>GOAL OS.4: Provide a network of trails linking the public to open spaces and recreation opportunities.</p>	
<p>POLICY OS.4.1: Coordinate with other City-wide and regional trail planning efforts to establish a comprehensive network of trails through and Open Space Plan in Pinole</p>	<p>As described in Section 3.0 (Project Description), the proposed project would create two public viewing points along the San Francisco Bay Trail. These two viewpoints would have signage describing the ecological and flood control features of the wetlands. In addition, the project would place signs on the east and west boundaries of the project site along the Bay Trail, identifying the Chelsea Wetlands and describing the wetland restoration process.</p>
<p>GOAL OS.8: Conserve and enhance excellent water quality and secure water supply for human and natural communities.</p>	
<p>POLICY OS.8.8: Protect creeks and San Pablo Bay within the Planning Area by implementing stormwater pollution-prevention activities.</p>	<p>Please see Policy OS.1.6</p>
<p>Community Services and Facilities</p>	
<p>GOAL CS.7 Minimize flooding.</p>	
<p>POLICY CS.7.1: The City will ensure that the storm drain system has adequate capacity to minimize street flooding and, where feasible, shall expand the capacity of the system to control storm flows.</p>	<p>As described in Sections 3.0 (Project Description) 5.8 (Hazards and Hazardous Materials), and 5.9 (Hydrology and Water Quality), the proposed project would increase the flood storage capacity of the project site.</p>
<p>GOAL LU.1: Preserve and enhance the natural resources, high-quality residential neighborhoods and commercial areas, and small-town (semi-rural) character of Pinole.</p>	
<p>POLICY LU.1.2 Require all proposed projects to be consistent with the General Plan and other applicable development standards established by the Specific Plan(s) or the City's Zoning Code.</p>	<p>The proposed project has been analyzed for compliance with General Plan and other applicable development standards.</p>

GOAL LU.5 Assure any development near environmentally sensitive sites protects important natural resources and recognizes hazard constraints.	
POLICY LU.5.2 Proposed development shall adhere to the following policies: a) Address site development constraints and resources, including archaeological sites, access, riparian protection, tree protection, steep slopes, ridgelines, wetlands, potential geologic hazards, and protection of views and open space resources. b) Consider clustering all development in areas that are most geologically stable and accessible. c) Protect resources on the site, including the riparian corridors, visible knolls and heavily wooded areas. d) Protect drainage channels, the steepest slopes and wildlife corridors (since they provide habitat and trail links), and locate development to minimize crossing drainage areas. e) Evaluate the visual impacts of development	Please see Policies LU 1.2 and OS.1.1.
GOAL LU.6 Protect and enhance the natural resources of the San Pablo Bay waterfront for public enjoyment.	
POLICY LU.6.3 Provide waterfront parks, pedestrian pathways and recreation areas that are safe, accessible, and attractive for public use	Please see Policy OS 4.1.

As noted, the project site is currently governed by the land use policies and regulations set forth in the General Plan and Zoning Ordinances. As shown in Tables 7 and 8, the project is generally consistent with the applicable policies outlined in the General Plans for the City of Hercules and City of Pinole. The project is generally consistent with and implements all other applicable plans and policies. As previously stated, inconsistency may indicate a significant physical impact, but the inconsistency is not itself an impact. The physical impacts of the project are analyzed in section 5.1 through 5.18 of this Initial Study. Thus, impacts related to the project's consistency with applicable plans and polices would be less than significant.

c) *Conflict with any applicable habitat conservation plan or natural communities conservation plan?*

No Impact. No habitat conservation plans or similar plans have been adopted by the City of Hercules, City of Pinole, or Contra Costa County for the project site and immediately surrounding area.

5.11 Mineral Resources

XI. MINERAL RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,10
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,10

Environmental Setting

The project site was historically tidal marsh but was filled in the early 1900s to support development. A majority of the site is characterized by a layer of fill extending to depths ranging from three to five feet bgs. The fill consists of silty clay material with various amounts of claystone or siltstone fragments. Underneath this upper layer of fill exists a layer of highly expansive native clay, representing the natural bay mud deposits.

Discussion of Impacts

a, b) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. The project area is does not contain any lands designated for mineral production or known for mineral deposits according to the Hercules or Pinole General Plans. Furthermore, the development of the proposed project would not preclude future excavation of oil or minerals should such resources be found. Therefore, the proposed project would have no impact on mineral resources.

5.12 Noise

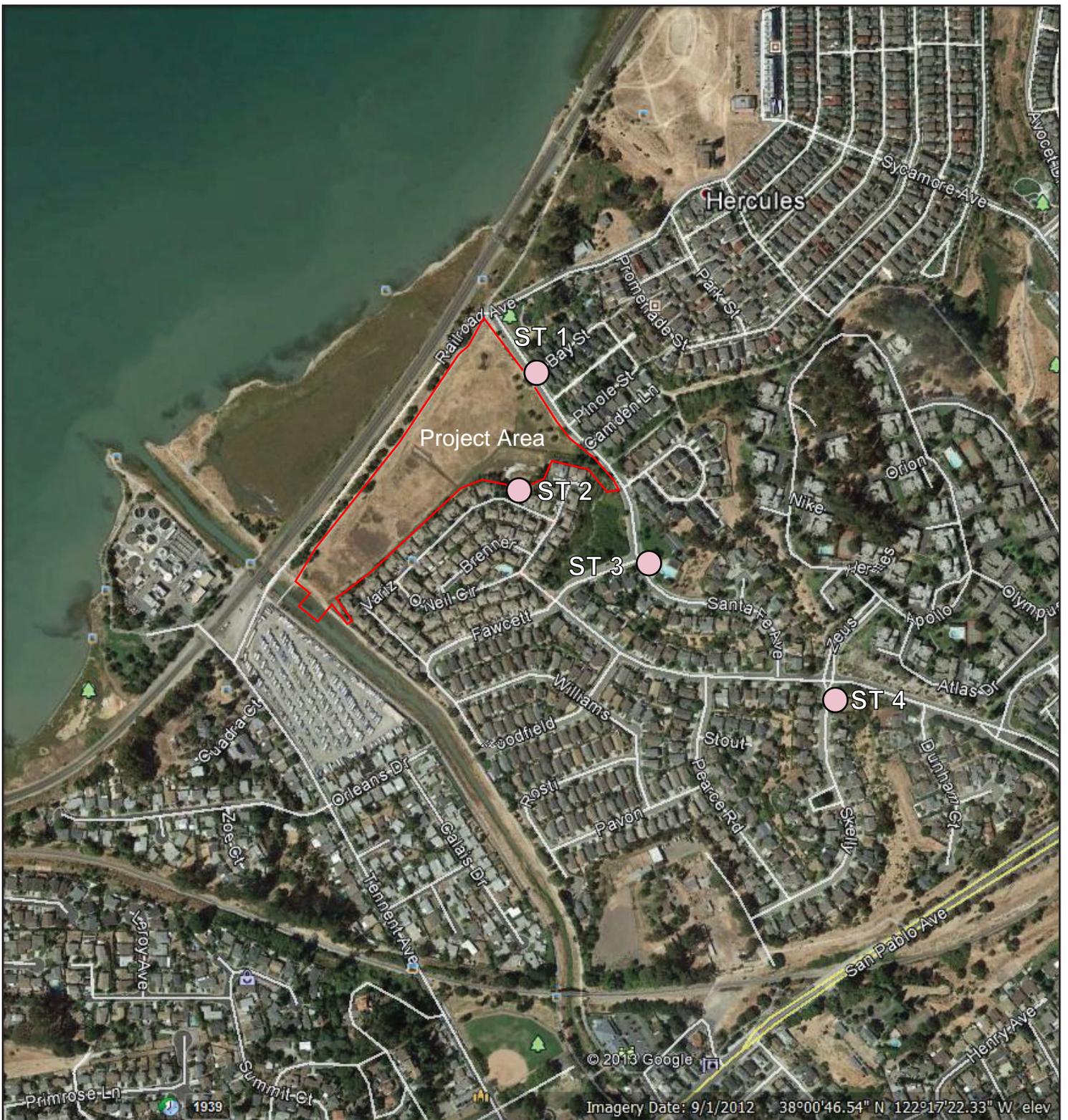
XII. NOISE — Would the project result in:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Environmental Setting

The project site is located in the City of Hercules and the City of Pinole, at the lower reach of Pinole Creek within the tidal influence of San Pablo Bay. The project site is situated less than 500 feet south of San Pablo Bay with the intervening land, as described from south to north, consisting of a limited access-gated frontage road identified as Railroad Avenue, a two-track rail line and siding operated by Union Pacific Railroad, and an intertidal mudflat. Easements between the project site and the railroad include a petroleum pipeline operated by Kinder Morgan Energy Partners, L.P, two fiber-optic cables, and a PG&E natural gas line. Inbound and

outbound sanitary sewer and a sewer force main are located under the existing adjacent Trail within City owned property while an East Bay Municipal Utility District main waterline is located within the existing Railroad Avenue right-of-way. The property to the west, beyond a multi-use trail and Pinole Creek, is a recreational vehicle storage yard, with residential development beyond. The Pinole-Hercules Wastewater Treatment Plant operated by the City of Pinole is located along the edge of San Pablo Bay to the northwest across the creek, frontage road, and railroad tracks. Lands to the south and east are single-family residential development.

Ambient noise measurements were made at four locations in the project vicinity that were representative of noise-sensitive receptors near the project site or along the truck haul route. Locations of representative noise-sensitive receptors are indicated on Figure 10 as ST-1 through ST-4. Noise measurements were made on the afternoon of Monday, December 16, 2013 to document existing conditions during typical daytime hours. Measurement ST-1 was representative of residential land uses located northeast of the project site along Santa Fe Avenue. The noise environment at this site was predominantly the result of intermittent vehicle traffic along Santa Fe Avenue and intermittent railroad train passbys. The average noise level measured at this site was 51 dBA Leq. Noise measurement ST-2 was made in the residential area southeast of the project site. Ambient noise levels measured at this location were approximately 44 dBA Leq and were primarily the result of distant traffic along Interstate 80. Measurements ST-3 and ST-4 documented existing daytime noise levels along the truck haul route. The average noise level at a distance of 50 feet from the center of Santa Fe Avenue and Hercules Avenue ranged from 52 to 58 dBA Leq.



Noise Monitoring Locations = ● ST

Figure 10. Noise Monitoring Locations

Chelsea Wetlands Restoration Project



Date: 1/30/14
Source: Illingworth & Rodkin

Discussion of Impacts

The discussion of project impacts follows the noise- and vibration-related CEQA checklist questions as summarized below. The primary noise issue associated with the project would be temporary construction activities. CEQA checklist questions a) and d) evaluate the potential for noise impacts attributable to construction. Item a) evaluates construction noise with regard to applicable local limits contained in the City of Hercules Municipal Code and General Plan. Item d) evaluates the temporary noise resulting from project construction activities with respect to activity interference thresholds. Construction activities would also have the potential to result in excessive groundborne vibration levels. This issue is addressed under Item b). Item c) evaluates the potential for substantial permanent increases in ambient noise levels, and Items e) and f) evaluate the potential exposure of persons or workers to excessive aircraft noise.

a, d) *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant with Mitigation Incorporated. The majority of the proposed project, including the soil haul route, would be located within the City of Hercules, which has established regulations within the Municipal Code and noise guidelines within the General Plan.

Section 7-2.608 of the City's Municipal Code requires that all work conducted under a City of Hercules Grading Permit that is within 500-feet of residential or commercial occupancies must be limited to the hours between 8 a.m. and 5 p.m. Monday through Friday, or as approved by the City Engineer. Project construction activities would occur during allowable hours (8 a.m. to 5 p.m. Monday through Friday), consistent with the allowable hours of construction as described in the City of Hercules Municipal Code.

In addition to the City's Municipal Code, the City of Hercules Noise Element states the following:

Policy 6 Control the level of noise at noise-sensitive land uses generated by construction activities through implementation of the following measures:

- For construction near noise-sensitive areas, as determined by the Community and Business Development Department, require that noisy construction activities (including truck traffic) be scheduled for periods, according to construction permit to limit impact on adjacent residents or other sensitive receptors.
- Develop a construction schedule that minimizes potential cumulative construction noise impacts and accommodates particularly noise-sensitive periods for nearby land uses (e.g., for schools, churches, etc.).

- Where feasible, require that holes for driven piles be pre-drilled to reduce the level and duration of noise impacts. (Not applicable to this project)
- Where feasible, construct temporary solid noise barriers between source and sensitive receptor(s) to reduce off-site propagation of construction noise. This measure could reduce construction noise by up to 5 decibels.
- Require internal combustion engines used for construction purposes to be equipped with a properly operating muffler of a type recommended by the manufacturer. Also, require impact tools to be shielded per manufacturer's specifications.

The tidal marsh restoration would be accomplished through the excavation of fill previously deposited on the site and the construction of a tidal channel that would connect to Pinole Creek through an improved culvert array. The restoration of the project site would require the excavation of approximately 40,000 cubic yards of accumulated fill material. Approximately 3,000 cubic yards of the excavated material would be reused on-site. The remaining 37,000 cubic yards of excavated materials would be hauled off-site to an approved disposal facility. The excavated soil would be placed in 20 cubic yard trucks for hauling. The project estimates that approximately 95 truck trips per day for approximately five weeks would be required to export soil off-site. Construction is anticipated to take place during the dry season (May through October). Construction should take approximately eight to twelve weeks to complete.

Equipment expected to be used for construction of the project is listed below:

- Long-Reach Excavator – Standard excavator used for most land-based construction projects. It would be used for all excavation activities in the project, including removing existing fill from the marsh plain, excavating the new tidal channel, and digging out the new culvert alignment.
- Bulldozer – Standard bulldozer used for most land-based construction projects. It would be used for grading the new marsh plain, habitat transition berms, and the flood-overflow weir.
- Dump Truck – Standard dump truck used for most land based construction projects. It would be used to haul material excavated from the new marsh plain to other areas on the site for building habitat transition berms, and for off-hauling all excess excavated materials to a selected disposal site. Each dump truck would have the capacity to hold 10 cubic yards of soil. Haul trailers capable of holding an additional 10 cubic yards of material may be hitched to dump trucks to increase capacity to reduce hauling trips.
- Earth moving Scraper - Standard elevating or pull-type scrapers used for most large land based construction projects. It would be used for the large earth moving and excavation grading of the new marsh plain and the habitat transition areas.

- Water Truck – Standard water truck readily available in case the site produces dust.

All equipment would be staged on the Chelsea Parcel during construction. All equipment would access the site via Santa Fe Avenue on the northeast side of the project site. Dump trucks taking excavated fill from the construction site to an approved off-site disposal area would use Santa Fe Avenue to San Pablo Avenue and Interstate 80.

Noise impacts from project construction activities are a function of the level of noise generated by individual pieces of construction equipment, the amount of equipment operating at any given time, the distance and sensitivities of nearby land uses, the presence of noise barriers or other structures that provide acoustical shielding, and the timing and duration of the noise-generating activities. Neither CEQA nor the City of Hercules defines what constitutes a substantial temporary or periodic increase in ambient noise levels. The threshold used to define what constitutes a substantial increase in daytime noise is if the project generates construction noise levels in excess of 60 dBA L_{eq} and the construction noise levels exceed the ambient noise environment by at least five dBA L_{eq} . Temporary is defined as a period of less than one year. Where noise from construction activities exceeds 60 dBA L_{eq} and exceeds the ambient noise environment by at least five dBA L_{eq} at noise-sensitive uses in the project vicinity for a period of more than one year, the impact would be considered significant.

FHWA's Roadway Construction Noise Model (RCNM) was used to calculate the maximum and average noise levels anticipated during each phase of construction. This construction noise model includes representative sound levels for the most common types of construction equipment and the approximate usage factors of such equipment that were developed based on an extensive database of information gathered during the construction of the Central Artery/Tunnel project in Boston, Massachusetts (CA/T Project or "Big Dig"). The usage factors represent the percentage of time that the equipment would be operating at full power. Vehicles and equipment anticipated during each phase of construction were input into RCNM to calculate noise levels at a distance of 50 feet. Table 9 presents the construction noise levels calculated for each major phase of the project. In some instances, maximum instantaneous noise levels are calculated to be slightly lower than hourly average noise levels. This occurs because maximum instantaneous noise levels generated by multiple pieces of construction equipment are not likely to occur at the same time. Hourly average noise levels resulting from multiple pieces of construction equipment would be additive resulting in slightly higher calculated noise levels. Noise generated by construction equipment drops off at a rate of six dB per doubling of distance.

Table 9. Construction Equipment Noise Levels at 50 feet

Construction Phase	Duration (Work Days)	Maximum Noise Level (L_{max}, dBA)	Hourly Average Noise Level (L_{eq}, dBA)
Demolition / Clearing	5	82	80
Site Preparation / Stripping	5	84	83
Grading / Excavation	100	85	87
Force Main Construction	10	83	81
Con-Span Culvert Construction	10	83	81
Flood Wall Construction (with Vibratory Pile Driving)	13	101	94

Construction Noise Levels at Receptors

Table 9 summarizes the individual construction phases that would have an effect on the noise environment at receptors, the duration of each construction phase, and the predicted worst-case noise level when construction activities occur immediately adjacent to receptors. Worst-case noise levels would occur when construction activities are at their closest point to a specific receptor. Construction activities would change location relative to a specific receptor as construction proceeds and noise levels would attenuate with distance from the construction site. Construction generated noise levels drop off at a rate of about six dBA per doubling of distance between the source and receptor. As shown in Table 9, hourly average noise levels resulting from the construction of the project would range from 80 to 94 dBA L_{eq} at a distance of 50 feet exceeding the 60 dBA L_{eq} threshold by 20 to 34 dBA L_{eq}. Construction activities could result in noise levels approximately 36 to 50 dBA L_{eq} above ambient daytime conditions (44 dBA L_{eq} ambient measured at Site ST-2).

Approximately 95 truck trips would be required per day for approximately five weeks to export soil off-site. Assuming an even distribution of truck trips during an eight-hour work day, there would be approximately 12 truck trips per hour along Santa Fe Avenue and Hercules Avenue attributable to the hauling of excavated soil. The haul trucks would generate hourly average noise levels of approximately 56 dBA L_{eq} at a distance of 50 feet, which would increase typical daytime traffic noise levels along Santa Fe Avenue and Hercules Avenue by approximately two to six dBA L_{eq}.

Construction noise levels would exceed the ambient noise environment by at least five dBA L_{eq} at noise-sensitive uses in the project area for a relatively short period of time (approximately eight to twelve weeks). At no location would the construction activity occur over a one-year period. With implementation of the mitigation measures listed below, impacts would be reduced to a less-than-significant level.

Mitigation Measures NOI-1

The Contractor shall develop a construction noise mitigation plan, which considers the following available controls, to reduce construction noise levels as low as practical. Reasonable and feasible noise control measures implemented at the construction site, as summarized below, would reduce construction noise levels by 5 to 10 dBA:

- For construction near noise-sensitive areas, as determined by the Planning Department, require that noisy construction activities (including truck traffic) be scheduled for periods, according to construction permit to limit impact on adjacent residents or other sensitive receptors.
- Develop a construction schedule that minimizes potential cumulative construction noise impacts and accommodates particularly noise-sensitive periods for nearby land uses (e.g., for schools, churches, etc.).
- Where feasible, construct temporary solid noise barriers between source and sensitive receptor(s) to reduce off-site propagation of construction noise. This measure could reduce construction noise by up to 5 decibels.
- Require internal combustion engines used for construction purposes to be equipped with a properly operating muffler of a type recommended by the manufacturer. Also, require impact tools to be shielded per manufacturer's specifications.
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- Unnecessary idling of internal combustion engines shall be prohibited.
- Construction staging areas shall be established at locations that would create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
- Locate stationary noise sources as far from sensitive receptors as feasible. If they must be located near receptors, adequate muffling (with enclosures where feasible and appropriate) shall be used. Any enclosure openings or venting shall face away from sensitive receptors.
- Locate material stockpiles as well as maintenance and parking areas as far as feasible from residential receptors.
- Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing.
- Designate a project liaison that shall be responsible for responding to noise complaints during the construction phase. The name and phone number of the liaison shall be conspicuously posted at construction areas and on all advanced notifications. This person shall take steps to resolve complaints, including

periodic noise monitoring, if necessary. Results of noise monitoring shall be presented at regular project meetings with the project contractor, and the liaison shall coordinate with the contractor to modify any construction activities that generated excessive noise levels to the extent feasible.

- Require a reporting program that documents complaints received, actions taken to resolve problems, and effectiveness of these actions.
- Hold a preconstruction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed.

b) *Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less than Significant with Mitigation Incorporated. For structural damage, the California Department of Transportation recommends a vibration limit of 0.5 inches/second, peak particle velocity (in/sec, PPV) for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec, PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and a conservative limit of 0.08 in/sec, PPV for ancient buildings or buildings that are documented to be structurally weakened.

All buildings in the project vicinity are assumed to be structurally sound, but these buildings may or may not have been designed to modern engineering standards. Vibration impacts would be considered significant if levels from proposed construction activities would exceed 0.3 in/sec PPV at nearby buildings. Vibration levels exceeding 0.3 in/sec PPV could result in cosmetic damage. No ancient buildings or buildings that are documented to be structurally weakened are known to exist in the project vicinity. The 13 residential homes that would be at risk of vibration impacts are shown in Figure 10.

Table 10 summarizes typical vibration levels associated with varying pieces of construction equipment at a distance of 25 feet. Major equipment anticipated during project construction would include: excavators, rubber-tired dozers, a scraper, tractors, loaders, backhoes, graders, compactors, a crane, trucks, a vibratory sheet pile driver, and various passenger vehicles. A review of the proposed equipment and the vibration level data provided in Table 10 indicates that, with the exception of vibratory pile driving, vibration levels generated by the proposed equipment would be below the 0.3 in/sec PPV criterion used to assess the potential for cosmetic damage to buildings located beyond a distance of 25 feet from primary work areas.

Vibratory pile driving is a required construction method for the installation of proposed Flood Walls “A” and “B”. Vibration levels would typically be below 0.3 in/sec PPV when located at a distance of 25 feet or more from structures, but if the upper range of

vibration levels occurred, the vibration would exceed the 0.3 in/sec PPV threshold level within a distance of approximately 75 feet, representing a significant impact.

Table 10. Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 ft. (in/sec)
Pile Driver (Impact)	upper range	1.158
	typical	0.644
Pile Driver (Sonic)	upper range	0.734
	typical	0.170
Clam shovel drop		0.202
Hydromill (slurry wall)	in soil	0.008
	in rock	0.017
Vibratory Roller		0.210
Hoe Ram		0.089
Large bulldozer		0.089
Caisson drilling		0.089
Loaded trucks		0.076
Jackhammer		0.035
Small bulldozer		0.003
<i>Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Federal Transit Agency, Office of Planning and Environment, May 2006.</i>		

Mitigation Measure NOI-2

Conduct a pre-project crack survey of existing buildings within 75 feet of Flood Walls “A” and “B” documenting existing conditions. Monitor ground vibration levels outside buildings within 75 feet of the project areas to confirm vibration levels are below the allowable level of 0.3 inch/sec PPV. If vibration levels exceed the allowable level, conduct a post-construction crack survey and repair any additional cosmetic damage resulting from the construction of the project. These measures would apply to the residential buildings identified in Figure 10. Implementation of this measure would reduce the impact to a less than significant level.

- c) ***Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?***

Less than Significant. It is expected that the restoration activities on the project site would be beneficial to birds and wildlife and would increase the overall habitat value of the project site. Up to two viewing areas would be located around the tidal marsh area to enhance passive recreation opportunities on the Bay Trail.

Similar to existing conditions, the wetlands, once restored, would not be a significant source of environmental noise in the project vicinity. The operation of the proposed project would not, therefore, cause a permanent change in the noise environment at receptors in the project vicinity.

- e) ***For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?***

No Impact. The project is not located within two miles of a public airport or public use airport and would not expose people residing or working in the area to excessive noise levels; therefore, the project would result in no impact with respect to aircraft noise.

- f) ***For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?***

No Impact. The project is not located within the vicinity of a private airstrip and would not expose people residing or working in the area to excessive noise levels; therefore, the project would result in no impact with respect to aircraft noise.

5.13 Population and Housing

XIII. POPULATION AND HOUSING — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Environmental Setting

The project site was historically tidal marsh but was filled in the early 1900s to support development. The site currently attracts visitors who use the San Francisco Bay Trail and the Pinole Creek Trail.

Discussion of Impacts

a-c) Induce substantial population growth in an area, either directly or indirectly, or displace substantial numbers of existing housing or people, necessitating the construction of housing elsewhere?

No Impact. The project would not induce population growth, as it does not propose any new homes, businesses, or infrastructure that could potentially induce growth. No permanent employment opportunities would be created from the proposed project. A limited number of short-term employment opportunities would be created by the proposed project. It is likely that construction workers would come from either the City of Hercules or Pinole. This limited increase in temporary workers would not constitute an impact. The project would not displace any people, as there is no existing housing on the project site. Therefore, there would no impacts to population and housing.

5.14 Public Services

XIV. PUBLIC SERVICES — Would the project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Source
a)	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:					1
i)	Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
ii)	Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
iii)	Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
iv)	Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
v)	Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Discussion of Impact

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

a-i) Fire Protection

Less than Significant. Implementation of the proposed project would result in the restoration and enhancement of public recreational space, which could result in increased usage by the surrounding population. A higher level of visitation to the proposed project site may result in increased demands for fire protection and emergency services by the Rodeo-Hercules Fire District. However, given the scope of the project, the proposed project is not anticipated to require the expansion of existing or constructing of new fire department facilities. The Rodeo-Hercules Fire District indicated in a letter dated November 5, 2013 that “the proposed project would not increase services provided by the Fire District” (Rodeo-Hercules Fire District, 2013). The first response unit to the project site would be dispatched from Fire Station 76 (1680 Refugio Valley Road), located about two miles east of the project site. The station is staffed by

four fire suppression personnel, one of which is a paramedic. The facility houses a fire engine, ladder truck, and an off-road fire engine (type 3), which would be used for fire suppression within the proposed tidal marsh. Therefore, impacts would be less than significant for fire protection services.

a-ii) Police Protection

Less than Significant. Implementation of the proposed project would result in the restoration and enhancement of public recreational space, which could result in increased usage by the surrounding population. A higher level of visitation to the proposed project site may result in increased demands for police protection and emergency services by the Hercules and Pinole Police stations. However, given the scope of the project, the proposed project is not anticipated to require the expansion of existing or constructing of new police department facilities. Therefore, impacts would be less than significant for fire protection services.

a-iii) Schools

No Impact. The project does not propose any residential development, and therefore would not affect the number of students attending public schools. Furthermore, the proposed project would not create any permanent jobs that would result in persons relocating to the area. Thus, the proposed project is not anticipated to induce population growth.

a-iv) Parks

No Impact. Please see 5.15 (a).

a-v) Other Public Facilities

No Impact. The project does not propose any residential development, and therefore would not create additional demands on other public resources. The land adjacent to the project site is built-out and the proposed project would not create any new permanent jobs. Therefore, the project is not anticipated to add to the current population surrounding the site.

5.15 Recreation

XV. RECREATION — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1

Discussion of Impacts

- a) ***Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

Less than Significant. The proposed project would not affect existing neighborhood or regional parks or recreational facilities. The project would provide new open space for local and regional users and connect to the San Francisco Bay Area Trail.

- b) ***Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?***

Less than Significant. The proposed project would enhance current recreational facilities. Approximately 1,200 linear feet of the San Francisco Bay Trail run along the proposed project site. As tidal marsh is relatively scarce along the Bay Trail in this area of Contra Costa County, the project would provide valuable nature/wildlife viewing opportunities. To enhance passive recreation opportunities on the Bay Trail, the project would add interpretive signage in various locations along the newly created wetlands. These signs would describe tidal marsh ecology, the restoration process, and how the wetlands integrate into the Pinole Creek watershed. In addition, the project also includes the creation of two turnouts on the bay trail, which would provide wildlife viewing platforms.

5.16 Transportation and Traffic

XVI. TRANSPORTATION/TRAFFIC — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,10

Environmental Setting

Operational Trip Generation

The proposed project could have the potential to increase usage of the site. It can reasonably be assumed that visitors would come to view the restored natural habitat and wetlands. Increased access and viewing improvements to the Bay Trail would also likely increase visitation to the project site. However, the number of trips is not anticipated to be significantly greater than those of existing conditions. Given the limited size of the proposed project, it is not expected to be a regional draw. Rather, most would walk or bike to the site, as visitors would likely come from the neighborhood surrounding the project site.

Construction Trip Generation

Construction traffic would be temporary in nature lasting only for the duration of the construction activity. During the grading and construction phases, construction traffic would primarily consist of worker vehicles and trucks that would enter and exit the project site. The staging of construction equipment and worker vehicles would occur on the project site. Construction activity would occur between 8:00 a.m. and 5:00 p.m. Monday through Friday. Most of the worker trips and most of the truck trips would occur off-peak.

The tidal marsh restoration would be accomplished through the excavation of fill previously deposited on the site and the construction of a tidal channel that would connect to Pinole Creek through an improved culvert array. The restoration of the project site would require the excavation of approximately 40,000 cubic yards of accumulated fill material. Approximately 3,000 cubic yards of the excavated material would be reused on-site. The remaining 37,000 cubic yards of excavated materials would be hauled off-site to an approved disposal facility. The excavated soil would be placed in 20 cubic yard trucks for hauling. The project estimates that approximately 95 truck trips per day for approximately five weeks would be required to export soil off-site. Construction is anticipated to take place during the dry season (May through October). Construction should take approximately eight to twelve weeks to complete.

Approximately 95 truck trips would be required per day for approximately five weeks to export soil off-site. Assuming an even distribution of truck trips during an eight-hour work day, there would be approximately 12 truck trips per hour along Santa Fe Avenue and Hercules Avenue attributable to the hauling of excavated soil.

Discussion of Impacts

- a) ***Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?***

Less than Significant. Construction traffic (equipment and materials transport, soil hauling off-site and daily worker traffic) would increase traffic on local roads during the construction phase. Temporary construction traffic would be limited to equipment and

material transport periodically during the construction phase, primarily during the grading phase. The temporary construction-related traffic would not result in a significant increase in traffic on local roads.

- b) ***Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?***

Less than Significant. The project is not expected to significantly increase vehicle travel during operations. However, this increase would most likely be small and less than significant. Construction-related vehicle use would be low, as described above. This limited level of trips would not conflict with the Contra Costa County Congestion Management Plans for the area.

- c) ***Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

No Impact. The project would not affect air traffic patterns and would have no effect on air traffic levels or safety.

- d) ***Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

No Impact. The project would not involve new road construction or activities that could increase hazards due to a design feature or incompatible uses.

- e) ***Result in inadequate emergency access?***

Less than Significant. All existing access would be maintained, and there would be no modifications to existing access that could reduce access for emergency vehicles. The City or its construction contractors will coordinate with law enforcement and emergency service providers prior to the start of construction to ensure minimal disruption to service during construction. Impacts relating to emergency access would be less than significant.

- f) ***Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?***

No Impact. The project would not conflict with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Construction of the proposed restoration and flood control project would provide minimal new trips to the road system and would have no effect on alternative transportation or policies

5.17 Utilities and Service Systems

XVII. UTILITIES AND SERVICE SYSTEMS —	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Source
Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1

Discussion of Impacts

a-e) *Less than Significant.* The project would not generate wastewater or require a new water supply. It would not impact wastewater treatment or capacity. The proposed project is located immediately north of and adjacent to Pinole Creek and would provide flood attenuation benefits to the Pinole Creek watershed by serving as an offline

detention basin. Elements are incorporated into the project design to improve the transfer of flood waters from the creek into the newly created wetlands on the Project site. The project would require the relocation of an eight-inch sewer line that runs along the western edge of the site. Approximately 140 linear feet of the existing sewer line would be lowered by two feet in order to accommodate the placement of the new tidal channel. Replacement would be in accordance with City of Hercules standards. Operation of the line would continue throughout the construction phase of the project. Therefore, impacts to water and wastewater services would be less than significant.

f) *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

Less than Significant. The project would generate solid waste from during construction, but all generated waste would be properly disposed or recycled in a nearby landfill or disposal facility with capacity to receive the waste. Any materials used during construction would be properly disposed of in accordance with federal, state, and local regulations. Impacts related to solid waste facilities would be less than significant.

g) *Comply with federal, state, and local statutes and regulations related to solid waste?*

Less than Significant. See Utilities and Service Systems discussion 17 (f).

5.18 Mandatory and Findings of Significance

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1

Discussion of Impacts

- a) ***Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?***

Less than Significant Impact with Mitigation Incorporated. The project would affect natural habitats or federally or state-listed species, mainly California Red-Legged Frog, and could result in impacts to undiscovered cultural artifacts. However, mitigation measures BIO-1a through 1d, BIO-2, BIO-3, and CULT-1 through CULT-3 would be required to be implemented that would reduce impacts to biological or cultural resources to less-than-significant levels.

- b) ***Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?***

Less than Significant. The project includes construction measures to minimize the temporary impacts of construction activities, and no significant long-term adverse impacts are anticipated. With these measures, the project would result in individually minor impacts and would not contribute substantially to cumulative impacts on any resource, resulting in a less than significant impact.

Section 15130 of the CEQA *Guidelines* requires an evaluation of potential environmental impacts when the project’s incremental effect is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. These impacts can result from a combination of the proposed project together with other projects causing related impacts. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

A significant impact may occur if a project, in conjunction with other related projects in the area of the project, would result in impacts which are less than significant when viewed separately, but would be significant when viewed together. At the time of preparation of this Initial Study there are three cumulative projects that are projected to be constructed or implemented within the next year in the vicinity of the project area. These projects are summarized below.

Lower Pinole Creek Demonstration Project (City of Pinole)

The proposed Pinole Creek Restoration Greenway Project would remove sediment and native soils, modifying levees and channel banks in some areas along the creek to create new areas of marshplain and floodplain to improve overall flood stage capacity. The project would restore marshplain and floodplain areas along the creek to more natural conditions to create new and enhanced wildlife habitat

Waste Water Treatment Plant (Joint City of Hercules and City of Pinole)

The Pinole/Hercules Wastewater Treatment Plant is located at the foot of Tennent Avenue in the City of Pinole. The plant serves a combined population of approximately 40,000, with an average daily flow of 3.5 million gallons.

Hercules Waterfront Project (City of Hercules)

The project site is located within the city limits of Hercules. The project applicant, Hercules Bayfront, LLC, is proposing to develop a 42.36-acre portion of the Historic Town Center sub-district and Transit Village sub-district of the Hercules Waterfront District Master Plan (WDMP) with a transit-oriented, mixed-use neighborhood that

includes a variety of dwelling types and businesses, and an associated system of walkable streets, other pedestrian interconnections, and public plazas with views of San Pablo and San Francisco Bays.

c) ***Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?***

Less than Significant. The project, particularly during the construction phase, could result in temporary impacts to human beings. Potential adverse effects would be related to temporary increases in noise and air pollutants during construction and any accidental spills of hazardous materials. However, implementation of construction measures and BMPs would ensure these impacts are less than significant.

6.0 REPORT PREPARERS AND PERSONS/ORGANIZATIONS CONSULTED

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